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USSR Report

AGRICULTURE

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AGRICULTURAL WORK PROGRESS IN RSFSR

Moscow SOVETSKAYA ROSSIYA in Russian 19 Jun 85 p 1

[Article: "Complete Readiness for Harvesting Operations"]

[Text] Russian fields are expansive and the climatic zones in which the harvest matures vary considerably. In some regions the sowing of agricultural crops has just been completed whereas others are nearing grain harvest time. The republic's kolkhozes and sovkhozes face the harvesting of about 70 million hectares of grains, over 10 million hectares of corn, and 5.5 million hectares of sugar beets, potatoes and sunflowers. Vegetables, flax, feed root crops and other crops must also be harvested. In other words, the volume of work is extensive and the intensity will be great, as usual. The main thing is to harvest everything within a compressed period of time, to take everything that has been cultivated and that is being given to us by the land, and to avoid even the slightest losses. These goals will be met successfully by those who prepare well for harvesting operations, who demonstrate great organization and who strengthen discipline and order.

Kolkhozes and sovkhozes have at their disposal sufficient numbers of machines to carry out grain harvesting in 10-12 days. In recent years a great deal of new equipment has arrived in the village and the load per combine has decreased. Taking this into account, enterprises are now emphasizing the qualitative aspects of work. In Apanasenkovskiy Rayon of Stavropol Kray, for example, not only the schedule for harvesting each agricultural crop and the material supplies required for this work, but how to collect more of the valuable grain are all carefully though out. Every hectare of durum wheat is being strictly controlled and the harvest methods used are determined by the condition of crops. First combines will move into the fields where grain is of high industrial quality. All brigades have covered threshing floors; all the qualities of these wheats are dependably preserved.

In work plans many enterprises also take into account the special regional features of the approaching harvest period. In a number of Russian regions a cold spring affected plant development and for this reason in some places, as specialists have already confirmed, grains will be short in height. In places where it was necessary to resow maturation will take place later than usual. This means that already now corrections must be made after a consideration of changing circumstances.

However, no matter how weather conditions develop, equipment must be at full readiness and dependably repaired and adjusted. Last year not all enterprises by far achieved this. As a result of breakdowns a large number of combines, reapers and trucks remained idle daily. Thousands of machines never did move into the fields for harvesting operations. Today, as before, equipment repairs are proceeding slowly in the Mordovian ASSR. As of early June over 1,000 combines, or one-fifth of the total number, were still in a state of disrepair here; this was also true for one-fourth of windrow harvesters. The situation is even worse in Kirov Oblast, where as of yet over 2,000 grain combines and almost half of the harvesters have not been repaired. Equipment is being readied slowly in some oblasts of the Central Chernozem Zone.

Without doubt we can see some serious omissions in the work of Goskomselkhoztekhnika [State Committee of the Agricultural Equipment Association] enterprises, which often violate the repair schedule and perform low-quality work. At the same time, RAPO [Rayon Agro-Industrial Association] and oblast organizations should monitor the way in which the repair base of kolkhozes and sovkhozes is used. In recent years it has been significantly strengthened; in some places essentially well-equipped enterprises have been created but they operate extremely poorly. Instead of utilizing their own shops in a business-like manner, kolkhozes and sovkhozes often address all their complaints to Selkhoztekhnika [Agricultural Equipment Association]. We should also combat such demagogy.

There is another very important special characteristic of this year's harvest. Recently industrial technology has been introduced more and more actively on grain fields. Today it is being assimilated on a large scale in the RSFSR. While expending additional resources, kolkhozes and sovkhozes have the opportunity to produce 1.5-2 times more grain from the same area. Harvesting clearly demonstrates where and how progressive technology is being introduced, whether or not there are errors and how to avoid them in the future. Supplementary expenditures for fertilizer, herbicides and equipment must be reimbursed by the harvest everywhere.

The success of harvest operations, as of any other job, depends on work organization. Russian farmers have accumulated considerable experience and it is important to utilize it actively while considering local conditions. At present it is not possible to provide good technical servicing and grain-transport vehicles for every individual operating unit. There will not be enough trucks or repair workers to go around. This is why scientists and specialists, together with leading machine workers, have proposed and are successfully introducing the group harvesting method and the comprehensive utilization of equipment in many enterprises. By doing this it is easier to organize the technical servicing of combines and reapers and it is possible to more effectively help service workers and to create the necessary leisure conditions for workers.

This type of harvesting method is widely utilized by the farmers of Stavropol Kray, the Kuban and Altay Kray.

In some enterprises when harvesting begins no immediate decision is made concerning the relationship between direct combining and two-stage grain harvesting. Orders are awaited. This type of practice is out of date. Everything depends on existing conditions and no one will be able to determine what to do better than the kolkhoz or sovkhoz specialist. The agronomist, brigade leader or link leader should take it upon himself to more boldly make such decisions. Actually this approach is used in collectives that work according to the independent system. Errors are not made because not only do machine operators and farmers know their fields best, they also are interested in producing the largest hargest possible.

In a number of regions, including in the oblasts and autonomous republics of the Volga, considerable useful experience has been amassed with regard to harvesting feed and to improving its quality. Hay, green mass for silaging and root crops are received directly in their place of production in the course of procurement by the zootechnical and veterinary service. This type of order allows us to carry out daily controls over adherance to technology and to make corrections in accordance with the circumstances.

The concern that is demonstrated for feeds must equal that which is demonstrated for grain. There are enterprises in which straw is poorly harvested during harvesting operations and then detachments are equipped to procure the same type of straw in other oblasts and even in other republics. The straw is shipped hundreds, and sometimes thousands, of kilometers, taking up space in railroad cars and making use of a large number of trucks. We cannot allow our own coarse feeds to remain in the fields. People's controllers and deputy posts, which are already created for the harvest period, are called upon to stop such mismanagement and wastefulness. Leading collectives set a good example concerning what must be done.

The best experience is our common property. Party organizations are called upon to control the utilization of this experience, to help those who have met with difficulties in adapting it, and to strictly make all those answerable who do not utilize progressive harvesting methods due to negligence, carelessness or sluggishness. At a recent conference of the CPSU Central Committee on questions related to the acceleration of scientific-technical progress special emphasis was placed on the importance of strengthening party influence and of increasing demandingness here. Unfortunately, often new methods and technologies must clear many hurdles.

One of the most important tasks of the harvest period is the elimination of harvest losses. These are still great. Each year for different reasons many kolkhozes and sovkhozes do not harvest one-fifth of that which has been raised. Some lose grain while it is still in spike form by delaying the harvesting period, others incur losses along the way during shipments or on threshing floors when they delay drying and processing. And then there are other sorry managers who lose the harvest in storage. This is why we must check and recheck the condition of roads, bridges, threshing floors, elevators, driers, silage trenches, storehouses and refrigeration units, make specific determinations about who is reponsible for what and achieve a high level of readiness of everything that contributes to complete preservation of products.

It is important to create a creative, militant mood among collectives, to develop a competetive spirit and to organize effective competition.

Agricultural workers of the RSFSR, having accepted socialist obligations at the beginning of the year, have given their word to increase their contribution to the implementation of the Food Program. It is intended to sell the state 54.3 million tons of grain and 28 million tons of sugar beets. New boundaries must be reached in livestock raising as well. The fulfillment of great obligations will depend to a significant degree on the results of the entire harvest period. Careful preparations for it are the key to success.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

AGRICULTURAL WORK PROGRESS IN USSR

Moscow SELSKAYA ZHIZN in Russian 27 Jun 85 p 1

[Editorial article: "Entering the Harvest Period"]

[Text] Grains are maturing on our country's expansive fields. In Central Asia and the Transcaucasus harvesting has already begun. In a short while everyone else will begin harvesting operations for the final year of the five-year plan. It is the great duty of collectives within the agro-industrial complex to fully complete preparations for the summer harvest in the coming days, to carry out harvesting operations successfully, to give the homeland more grain and other products, to stockpile sufficient quantities of feed and to mark the coming 27th party congress with an increasing pace of agricultural development.

The coming harvest period will be characterized by the practical implementation of decisions of the April Plenum of the CPSU Central Committee and by new goals established at a meeting of the CPSU Central Committee dealing with questions of accelerating scientific-technical progress. The main thing now is to seek out and utilize all reserves for increasing the effectiveness of agricultural production. During the harvest period it is important to achieve the greatest productivity of labor, the preservation of the entire harvest and the unconditional fulfillment of state procurement plans for all types of products and raw materials. There are many difficulties along this path. But APK [Agro-Industrial Complex] workers are obliged to do away with them and to know how to collect and preserve everything that was raised in the fields.

The resolution of the USSR Council of Ministers, "On Supplementary Measures to Provide for Harvesting Operations and the Procurement of Agricultural Products and Feeds in 1985 and on Successfully Completing the Wintering of Livestock in the Period 1985/86," which was recently discussed at a meeting of the Politburo of the CPSU Central Committee, is also directed at the successful fulfillment of this year's responsible tasks. The corresponding ministries and departments, local party and soviet organs and directors of agro-industrial associations, kolkhozes, sovkhozes and other organizations have been assigned the task of achieving the timely and quality preparation of harvesting technology, means of transportation, reception points, feed shops and livestock-raising facilities. An acceleration of deliveries of harvesting

equipment, trucks, spare parts and other material-technical resources to agriculture has been foreseen.

During the current summer period there has been a noticeable increase in the volume of field work. Grain and legume crops alone must be harvested from over 119 million hectares and threshed. We must remove the harvest from feed fields, the area of which has reached 67 million hectares. Corn, sunflower, sugar beet, cotton, potato and vegetable crops are gathering strength. This is why the labor efforts of APK collectives must be doubled in the fields, in shops, in elevators and in processing enterprises and why preparatory work must be completed more rapidly. It is important to adjust the harvesting conveyor in all links so that it operates without interruption on a 24-hour basis while achieving a precision pace in harvesting and procuring grain and other products.

It is with this type of attitude that Kuban workers are beginning harvest operations. Ready for field work are 18,000 combines, 12,000 reapers and the truck and tractor fleets. Units are being equipped with attachments for harvesting short-stemmed grains and chaff; night work is being organized. Grain-cleaning machines have been repaired on mechanized threshing floors. Mutual examinations of readiness for harvesting operations have been carried out everywhere; work plans and harvesting and threshing schedules have been made more precise. In the kray active measures are being taken to complete harvesting in a compressed period of time and to fulfill the obligation of selling the state 4.37 million tons of grain. The machine operators of Stavropol, Don, the Ukraine and Moldavia are beginning shock work. Harvesting and threshing operations are in full swing in Azerbaijan, where elevators have received the first 10,000 tons of wheat and barley.

Beginning harvesting operations in an organized manner everywhere means insuring their general success. With this goal in mind, as foreseen by the resolution of the CPSU Council of Ministers, equipment must be placed on the line of readiness no later than 2 weeks prior to the beginning of harvesting operations. Meanwhile, unfortunately, only 85 percent of grain combines, 67 percent of rice combines, 73 percent of corn combines, 71 percent of beet combines and 86 percent of trucks are in a good state of repair. In Kazakhstan, one third of combines are in a state of disrepair; in Uzbekistan--one-fourth. And after all, harvesting has already begun in the southern oblasts. A significant portion of equipment is not ready in Kurgan, Orlov, Udmurt and Chita enterprises.

Time does not wait. We should eliminate lags in repair work more rapidly. Industrial enterprises are called upon to render effective aid to the village in readying harvesting equipment. It is their duty to manufacture and deliver the necessary spare parts and equipment to Goskomselkhoztekhnika [State Committee of the Agricultural Equipment Association] ahead of time. Meanwhile, the Krasnoyarsk PO [Planning department] on Grain-Harvesting Combines, Altayselmash [Altay Agricultural Machinery Association] and Millerovselmash [Millerov Agricultural Machinery Association] plants, the Chelyabinsk Tractor Plant and Berdyansk PO are not fulfilling their obligations to the village. It is important to stockpile the necessary

quantities of fuel and lubricating materials before work starts and to institute strict controls over their storage and use.

During harvesting a decisive role must be played by the skillful organization of labor, by progressive technology and by the uninterrupted technical servicing of units. In particular, the practice of creating harvesting-transport complexes, detachments and links has proven itself well. The concentration of combines, trucks and machine-operating cadres in them will facilitate the achievement of the greatest output and excellent quality of harvests. The experience of such nationally-known harvest masters as Hero of Socialist Labor N. V. Pereverzev, N. V. Bochkarev, V. M. Cherdintsev, V. M. Voronin and others convincingly attests to the fact that collective forms of labor organization, brigade contracts and cost accounting are indispensable conditions for success in harvesting and procuring products.

Party organizations, directors of enterprises and RAPO's, and specialists are called upon to more thoroughly consider the special characteristics of the current harvest period, to more actively introduce all that is new and progressive, and to strive for a rapid work pace and the elimination of harvest losses. From the very first day of harvesting it is essential to begin widespread competition among combine operators, drivers and collectives of threshing floors and elevators, to more effectively utilize moral and material incentives for growth in labor productivity and to demonstrate daily concern for the everyday lives of all participants in the harvest.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

COLD, INCLEMENT WEATHER TAXES VEGETABLE GROWERS

PM011233 Moscow PRAVDA in Russian 20 Jun 85 First Edition p 1

[A. Sokorev "Agricultural Review"; "From Meadows and Truck Gardens"]

[Excerpt] Composite mechanized detachments have been created in leading farms and two-shift operation of units has been organized. The first cut has been completed and the foundation is being laid for a new harvest of green matter: fertilizer is being applied and meadows are being watered. But not everywhere have the farmers managed to arrange their forces correctly and ensure efficient handling of resources. Farmers in Taldy-Kurgan, Alma-Ata, Vitebsk, Gomel, Donetsk, Zaporozhye, Volgograd, Saratov, and some other oblasts are lagging behind last year's forage procurement rate. Considerable areas of perennial sown grasses have yet to experience the first cut in Azerbaijan, Kirgizia, and Tajikistan.

A number of oblasts have failed to take steps to create a feed storage base and plans for the construction of haylage and silage trenches and storage for hay, root crops, and grass meal are not being fulfilled. Not everywhere is the potential for obtaining additional or second crops being exploited, and the rural population and working people of cities have not been mobilized for feed procurement to cut the grass in forests, on disused land and in gullies and ravines. Some kolkhoz and sovkhoz party organizations are showing little interest in the haymaking process; in some cases they are tolerating serious shortcomings in labor organization and are failing to take a principled stand on inefficiency, laxity, and mismanagement. By no means all feed procurement teams have been switched to financial autonomy and collective contracts.

Vegetable growers are having a busy time too. This year the farmers' maturity and expertise are being put to the test by cold spells and bad weather in a number of areas of the country. The planting of vegetable crops in open ground started 2-3 weeks later nearly everywhere.

Every day tens of thousands of metric tons of cucumbers, tomatoes, greens, and berries are being dispatched from truck gardens, hotbeds, and greenhouses to the trade network. By mid-June 928,800 metric tons of early vegetables had been purchased from farms. This is 119,000 metric tons fewer than in the same period last year. The biggest lag was on kolkhozes and sovkhozes in Azerbaijan, Uzbekistan, Georgia, and the Ukraine.

CSO: 1824/461

MAJOR CROP PROGRESS AND WEATHER REPORTING

IZVESTIYA REVIEWS HARVEST WORK PROGRESS

PM271511 Moscow IZVESTIYA in Russian 27 Jun 85 Morning Edition p 1

[V. Gavrichkin Agricultural Review: "Crop Farmers' Busy Summer"]

[Excerpts] The USSR Central Statistical Administration reports that as of Monday 24 June sown and natural grass had been cut for the first time on 20.7 million hectares. Some 10 million metric tons of hay, 19.5 million metric tons of cured hay, and 1.3 million metric tons of grass meal and other artificially dehydrated green feed have been procured.

Perhaps you cannot call this summer a hot one. But the paradox is that it is for precisely this reason that it has been a particularly busy one for the arable farmers. The deadlines for many agricultural operations have been changed and now one period of hard work is really hurrying after another....

Haymaking is at its height. And the grain harvest is already beginning in the south. It is not a case of the south of Central Asia and the Transcaucasus, where the harvesting toil is in full swing and many regions have completed the harvest, have shipped the grain to the elevator and are resowing the cleared fields. The grain growers of the Don, Kuban, and Stavropol Kray have driven the reapers onto the fields and begun the selective cutting of winter crops. The harvesting toil is about to come to the fields of the Ukraine, Moldavia, and the lower Volga region.

The grain harvest requires great efforts even now. Because 1.9 million hectares less sown and meadow grass has been cut than last year in the country and 3.2 million metric tons less cured hay and 0.8 million tons less hay have been procured. While the Lithuanian farms have procured 47 percent of the planned quantity of hay, the Ukrainian farms have procured 41 percent, and the Azerbaijan farms 36 percent, in Estonia the figure is only 1 percent and in Belorussia 14 percent. Many oblasts of the RSFSR are also lagging behind.

Of course, the weather conditions are complex. But it is not only the rain and cold which are to blame. Many kolkhozes and sovkhozes of the Central, Volga-Vyatka regions and the Tatar, Bashkir, and Udmurt ASSR's have been waiting for a long time. Now the hay fields have been standing for too long. Now is the time to show their mettle to the full, but it has emerged that the active ventilation plants are not being properly used and the kiln driers [ognevyye sushilki] are only working at half strength.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

IZVESTIYA HIGHLIGHTS FARMERS' CURRENT PROBLEMS

PM011315 Moscow IZVESTIYA in Russian 20 Jun 85 Morning Edition p 1

[V. Gavrichkin "Agricultural Review": "Cultivating, Harvesting and Storing the Crop"]

[Excerpts] The USSR Central Statistical Administration reports that by 17 June the first cut of 13.8 million hectares of sown and natural grasses had harvested. Some 6.0 million metric tons of hay, 13.7 million metric tons of haylage, and 850,000 metric tons of green dehydrated feed had been procured.

This is the optimal time for first cuts in the Central Chernozem Zone and the Volga region of the RSFSR. Feed-procurement workers in Tambov, Kursk, Saratov, and certain other oblasts are using their equipment unproductively. An in Siberia, and the northern and eastern regions of Kazakstan, where the "green harvest" has also begun, much feed-harvesting machinery is still unrepaired. It has to be said that it is unusual to see such unpreparedness on many kolkhozes or sovkhozes in Belorussia (especially Vitebsk Oblast), Lithuania, or Latvia.

A quite considerable number of irrigated hectares producing feed are having their supply of water interrupted through the fault of organizations in charge of water resources, and some are not being watered at all. At a time when the second crop is forming in the fields, this is intolerable. Time, after all, does not stand still. The farms in the southern regions have already begun to cut their sown grasses a second time.

Grain corn requires special care now. It has taken less than 5 years for its cultivation by industrial methods to become universally established. And the area under this crop has increased by almost 1 million hectares. It now occupies more than 3.9 million hectares. Its growing areas have moved significantly northward, eastward, and beyond the Urals. The condition of the sown areas is good and satisfactory, according to specialist appraisals. The grain growers are keeping strictly to production procedures.

The fields growing silage corn and the fields under the feed root crops, potatoes, and industrial crops require equally painstaking care.

One is bound to be concerned that some farms in Kirghizia, Tajikistan, and Turkmenia are processing cotton only slowly at the moment in contravention of

established agricultural methods and schedules. In central and certain other oblasts of the country prolonged rain has waterlogged the vegetable fields, especially those of the floodplains of rivers. However, by no means everywhere are the vegetable growers hurrying to help remove the excess moisture by digging trenches in the soil and deepening drainage ditches. The final deadlines for planting insurance crops of carrots, table beets, and cabbage are approaching. There are already cases of interruptions in the work of the transport system bringing early crops from our southern truck farms.

The fate of the beet harvest is also being decided in the fields at the moment. A second interrow cultivation is being carried out and the plants are being top-dressed. Work to combat pests and diseases has been carried out on 6.6 million hectares. This is a good rate of work. But, unfortuantely, it has not been error-free. And, as a consequence, certain sectors on farms in Vornezh Oblast, for example, have had to be resown. Crops have been sparse and weed-infested in some places because of inept production techniques. The matter must be rapdily rectified.

We have already mentioned the onset of harvesting in the southern regions. But our main grain area, especially the fields cultivated by intensive methods, still needs the most painstaking care. Grain growers are now [illegible]oving greater yields and high-quality grain by using special techniques.

A sudden outburst of weed growth is particularly dangerous to well-fertilized areas of spring crops. However, there are fields in North Kazakhstan oblasts and in the Altay region where destruction of weeds by harrowing before they had time to sprout was delayed. All hopes now rest on chemical week control, and that is delicate work. True artistry is required here. The manpower and techniques available enable it to be carried out within a matter of days. And we must not delay.

We are on the verge of the harvest. Its preparation requires great efforts. Measures to ensure the crop is harvested and agricultural products procured have been laid down by USSR Council of Ministers' resolution and give the workers of the agroindustrial complex quite considerable additional scope. We must spare no effort to harvest the crop without loss and store it safely.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

COMBATTING CROP PESTS, WHEAT DISEASES DISCUSSED

Timely Measures Ensure Harvest

Kiev SILSKI VISTI in Ukrainian 12 May 85 p 1

[Article by I. Babchuk, deputy chief of the Ukrsil'gospkhimiya Association, and H. Hrysenko, director of the Ukrainian Scientific Research Institute for the Protection of Plants, doctor of biological sciences and professor: "Combatting Crop Pests and Diseases of Wheat: Timely Advice"; passages in all caps shown in boldface in source.]

[Text] One of the means for increasing the productivity of wheat is to employ productivity-promoting technology in the cultivation of winter wheat. Productivity-promoting technology is already employed on one and a half million hectares of the republic. The main thing now is to protect winter crops in a timely and high-quality manner from crop pests, diseases and weeds.

For plants in a majority of the forest steppe and woodland areas of the republic an early winter and a prolonged stay under a deep layer of snow has resulted in a greater consumption of soil nutrients and weakening of the plants. At the time of renewed growth of winter crops, this often contributes to a rapid development of root rot, mealy spotting, septoria spot, brown leaf rust and Helminthosporium in the central and especially in the western oblasts.

Now, at the end of the tilling stage, an increase in the number of harlequin bugs [probably--Phyllotreta vittula] and cereal leaf beetles is being observed in the eastern and south-eastern oblasts of the republic.

Wheat bugs [pentatomids] are migrating from their winter locales to areas sown with winter crops in the steppe oblasts of the republic. As was the case in the past year, the highest potential number of crop pests is being recorded in the Visokopilsk, Novovorontsovsk and Velikooleksandrivsk Rayons of Kherson Oblast; Melitopolsk and Kamyansko-Dneprovsk Rayons of Zaporozhye Oblast; and Verkhno-dneprovsk and Synelnykivsk Rayons of the Dnepropetrovsk Oblast.

It is anticipated that on the farms of the Odessa, Crimean, Kherson, Nikolayev and Zaporozhye Oblasts there will be an increase in cereal leaf rollers and plant lice.

The timely battle with wheat bug larvae is of great significance. Although their number has decreased somewhat in comparison with last year because of the harsh winter, the threat to grain quality has, however, not diminished. The optimum times for battle with the bug are tentatively set in the second ten-day period of June. It is necessary to pinpoint these times accurately with the help of the closest signal and forecasting posts. The most expansive cultivation of fields must be carried out in Kherson, Dnepropetrovsk, Zaporozhye and Nikolayev Oblasts.

The number of plant lice and thrips may increase during the grain's milk-wax ripeness stage in the central, eastern and southern oblasts. Their most intensive development is possible in the Zaporozhye, Dnepropetrovsk and Kherson Oblasts. The number of corn weevils may increase in the Dnepropetrovsk, Voroshilovgrad, Zaporozhye, Donetsk and Kirovograd Oblasts. And in the western and individual central oblasts there may be an increase in mealy spotting, septoria spot, and other diseases. Under the conditions of excessive humidity in the central and western oblasts at the grain's milk-wax ripeness stage, enzymomicotic contact is likely with the next infestation of saprophytic fungus.

DURING THE TIME OF THE WINTER CROPS' RENEWED GROWTH WHEN THE SPIKE IS FORMING, IT IS IMPORTANT TO MINIMIZE THE THREAT TO THE PLANTS FROM DISEASES, CROP PESTS AND WEEDS.

Along with a number of agrotechnical measures (such as fertilizers and spring harrowing) it is necessary to carry out special chemical cultivation of sown areas in order to prevent the significant development of crop pests, diseases and weeds in order to obtain the planned harvest yield and high quality. The extent of this cultivation and times for its implementation are pinpointed during the course of growth in each individual field. Spraying is carried out taking into consideration the threshold for ecological harm.

Fields on which root rot and mealy spotting are observed are treated with 0.6 kilograms of 'fundozol'; when combined with dialen, the solution applied at 2 kilograms per hectare, or when combined with 'lontrel' 0.3 kilograms per hectare is applied. Fields that are infected with septoria spot, brown rust, and Helminthosporium, are treated with 0.6 kilograms of 'baylenton', and in its absence with 'tsinebom'--3 kilograms per hectare 'polikarbatsin', or colloidal sulphur--5 kilograms of the preparation per hectare. Sown areas are treated by above-ground machinery and with the help of agricultural aviation. The standard output of working fluid is respectively 300 to 400 liters and 100 liters per hectare. Mouse-like rodents are exterminated with poisoned bait.

Another type of treatment with fungicides is carried out when there is evidence of disease in plants. Treatment with 0.6 kilograms of 'fundozol' or 'baylenton' per hectare of 'tsinebom', 'polikarbatsin' and sulfur preparations is carried out against septoria spot, root rot, mealy spotting, Helminthosporium and brown rust on sown areas of unfallowed preceding crops.

On arable areas left fallow another type of chemical treatment is carried out with 0.5 liters of 'tilto' per hectare or 2 kilograms of 'plantvaks'

per hectare. In the absence of these preparations a domestic preparation is useful.

The period in which the grain is most responsive to chemical treatment is its milk-wax ripeness stage. In order to maintain the grain's quality, the struggle against wheat bug larvae is carried out at this time. With the detection of the larvae and also plant lice and thrips, crop areas are treated with 'metaphos' and methylparathion preparations. When mealy spotting is detected on the fields of western oblasts, 'bayleton' or 'fundozol' is mandatorily added to insecticides in a proportion of 0.6 kilograms per hectare.

When chemical means are employed in the protection of plants, it is necessary to strictly follow accident prevention measures and sanitary hygiene conditions.

The struggle for the preservation of sown areas is the duty not only of plant specialists but also of farm agricultural service organizations. The timely implementation of measures for the protection of crop areas will help to successfully instill in production a strengthened technology for the cultivation of winter wheat; this will be a guarantee for an increase in grain production and its high quality.

Correct Procedures Improve Harvest Quality

Kiev SILSKI VISTI in Ukrainian 29 May 85 p 1

[Article by I. Babchyk, deputy chief of the republic association Ukrsilgospkhimiya, and I. Plastun, senior research associate of the Ukrainian Scientific Research Institute for the Protection of Plants, and candidate in the biological sciences: "Let's Protect Cereal Grains from Crop Pests: Timely Advice"; passages in all caps shown in boldface in source]

[Text] The implementation of a rational system of measures to protect cereal grains from crop pests is one of the most important prerequisites for obtaining consistently high yields of good quality grain. The wheat bug is the most dangerous crop pest for wheat in the farms of the steppe zone. In spite of the substantial decrease in the number of adult insects over the winter, as compared with previous years, in the majority of oblasts this particular type of crop pest is very prevalent and is capable of increasing the number of larvae and young insects in large fields to a level which may threaten to significantly worsen the baking quality, processing quality and, in a number of instances, the sowing-seed quality of grain. This is why problems regarding specialized organization for combatting the wheat bug must be given urgent attention by service organizations for the protection of plants, agricultural technologists, farm managers and state and collective institutions. Just such a combination of efforts in Kherson Oblast and certain other oblasts ensured complete success in 1984 in the attainment of the ultimate goal--a sharp increase in the extent of procurement and sale to the state of grain of a vigorous and valuable wheat.

An indispensable proviso of proven and effective benefit in the battle of poisonous chemicals (insecticides) against the wheat bug is the assiduous inspection of sown areas for the purpose of determining the average number of crop pests on them. The inspection is carried out by groups of statisticians under the direct guidance of farm specialists during the forming stage, that is the beginning of grain ripening. Along with the wheat bug, it is advisable to count the number of cereal plant lice, weevils and cereal leaf beetles (when there is a mass infestation of the sown area by these types of crop pests).

Based on the estimates of the anticipated rate of increase in wheat bugs in the present year, the optimum time for the application of insecticides, which will guarantee a reliable preservation of the grain's quality from crop pests, will be THE PERIOD FROM THE END OF THE FORMING OF THE GRAIN TO THE COMPLETION OF ITS RIPENING. IT IS EXACTLY DURING THESE 8 TO 12 DAYS THAT CHEMICAL TREATMENT OF THE SOWN AREAS SHOULD BE CARRIED OUT. IN THE GREATER PART OF THE STEPPE ZONE TERRITORY THE TENTATIVELY ASSIGNED TIMES FOR THIS WILL FALL DURING THE FIRST HALF OF JUNE.

The start of treatment of sown areas should commence in accordance with the signals of weather-forecasting posts and plant protection stations. Fields assigned to cultivation of vigorous and valuable wheat, and also those fields cultivated by means of intensive technology should be treated in instances when an average of not less than 1 to 2 shield bug larvae per square meter are detected.

THIS QUANTITY OF CROP PESTS IS SEEN ON PRACTICALLY EVERY FIELD AND THEREFORE THE BATTLE AGAINST THEM ON SOWN AREAS EXPECTING A HIGH QUALITY GRAIN MUST BE VIEWED AS A MANDATORY PROCEDURE. The rest of the fields of commercial and seed wheat and also seed barley are cultivated with pesticides when 3 to 5 larvae per square meter are present. One of the following insecticides is useful for cultivation: 80 percent 'chlorophos' (1 to 1.2 kilograms of the preparation per hectare), 40 percent 'metaphos' (0.5 to 0.8 kilograms per hectare), 30 percent 'vofatoks' (0.6 to 1 kilogram per hectare), 50 percent methylparathion (0.5 to 0.8 kilograms per hectare), 50 percent 'metation' (0.6 to 1 kilogram per hectare.

When there is the necessity for a combined battle against wheat bugs and cereal plant lice, all the above-cited higher concentration preparations are suitable with the exception of 'chlorophos'. Good results are guaranteed also in these instances by a vat mixture of 'chlorophos' with 'metaphos' or 'vofatoks' with half of the usual application of the preparation. If at the time of cultivation an average of not less than 2 to 3 individual weevils is detected per square meter, then a mixture of 'chlorophos' and 'metaphos' should be applied 0.8 to 1 and 0.4 to 0.5 kilograms per hectare respectively.

IN ZONES WITH ACTIVE IRRIGATION SYSTEMS, CHEMICAL MEASURES SHOULD BE EMPLOYED IN SUCH A WAY AS TO FIRST CULTIVATE FIELDS IN DRY FARMING LANDS WHERE CROPS ARE ROTATED AND WHERE THE DEVELOPMENT OF BOTH FIELDS AND WHEAT BUGS IS SIMILARLY HASTENED BY IRRIGATION CONDITIONS.

A sharp increase in the number of cereal plant lice and cereal leaf beetles is possible in dry land farms of the forest-steppe and steppe zones through the second half of May and the month of June when the weather is predominantly warm with fairly frequent precipitation. An earlier increase in the number of lice is also possible, reaching the point of declining economic returns, particularly in the conditions of the Western and Central Forest Steppe.

Chemical battle with plant lice is conducted when their number has risen on an average of 8 to 12 individuals per stalk at the beginning of the grain's forming stage to 20 to 25 individuals at the beginning of ripening (milk-wax stage). For this purpose 40 percent 'metaphos' (0.3 to 0.5 kilograms per hectare), 30 percent 'vofatoks' (0.5 to 0.7 kilograms per hectare), 30 or 50 percent malathion (respectively 1 to 1.2 and 0.5 to 0.8 kilograms per hectare), 40 percent phosphatide (BY-58) (0.5 to 1 kilogram per hectare) is recommended.

If the need arises in farms of the steppe zone to combat plant lice in the first half of the grain forming stage, and for the simultaneous combined protection from the pernicious wheat bug of areas sown with wheat and seed barley, then phosphatide (BY-58) must be expediently applied, with an increase in the standard application of the preparation to 1.5 kilograms per hectare. This combination will provide, through a one-time spraying of the sown area, a sufficiently reliable protection of the harvest from a number of crop pests (bugs, lice, thrips) and also from cereal leaf beetles.

A mass increase in cereal leaf beetles is possible on a number of farms, especially in the south-eastern portion of the republic and the Western Forest-Steppe zone. It must be remembered that cereal leaf beetles are more frequently found in the springtime on areas sown with winter wheat, and then later are concentrated in greater amounts on spring-spiked crops, to which they naturally inflict more tangible damage, particularly to oats. The timely inspection of the fields has great significance since the well-timed application of insecticides is an important condition for the effective protection of the harvest from cereal leaf beetles and from significant damage to leaf surface plants by larvae of crop pests. Considering the demonstrated capability of cereal leaf beetles to create nuclei of mass reproduction not only within boundaries of rotated crops, but also in fields, it is necessary to pay special attention during inspections to strips of sown land which are adjacent to perennial crop areas, ravines, semi-permanent grasslands for soil improvement, ponds and swamp areas.

Depending on the observed peculiarities of the infestation of the sown area by crop pests, a selective or complete spraying of the field with insecticides is recommended within the reproductive nuclei on areas sown with winter wheat when the average increase is observed as not less than 1 to 2 pests per stalk and on barley and grain fields sown with oats 0.5 to 1 cereal leaf beetle larva and egg per each stalk. In addition to using the previously mentioned phosphatide (BY-58) in the battle with cereal leaf beetles, one can also apply 40 or 30 percent 'metaphos' ('vofatoks') using an estimated 0.5 to 0.8 kilograms of the preparation per hectare. If the number of cereal leaf beetles is very high, 35 percent 'pholsalan' ('zolon')--1.5 to 2 kilograms per hectare--is useful.

It is no less important to make painstaking efforts to adhere to the rules for prevention of accidents when working with insecticides since they are poisonous to people and animals. Only suitably trained workers, who have mastered the rules of accident prevention and the technology for performance of these jobs, can be allowed to carry out these efforts.

12911
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MAJOR CROP PROGRESS AND WEATHER REPORTING

SPRING SOWING READINESS IN KUSTANAY OBLAST

Moscow TRUD in Russian 3 Apr 85 p 1

[Article by D. Brusnik, chairman, Kustanay Oblast Trade Union Council: "The Virgin Lands Are Being Readied for Sowing"]

[Excerpts] Our oblast has a huge grain area. There are about 4.3 million hectares of grain, including 3.1 million sown to wheat. This kind of cropland requires constantly increasing expertise on the part of the farmers as well as more effective agricultural measures. In recent years the farms of Kustanay have introduced a soil-protective system of land cultivation, substantially expanded the fallow area, and are utilizing mineral and organic fertilizers to greater effect. Because of extremely unfavorable weather conditions, especially last year, grain sales to the state in the first 4 years of the five-year plan have, on many farms, been less than planned.

This is why the Virgin Lands people have been putting so much effort into the concluding year of the five-year plan. It is necessary, it is essential to make up the lag. Last fall, subsurface cultivation was carried out on almost the whole area. The fields were fertilized. Last year the snow cover managed to accumulate to 40 or more centimeters, something that has not happened for a long time.

A new and significant factor in preparations for this spring is the introduction of the intensive technology of cultivating strong and durum wheat. By way of implementing the CPSU Central Committee and USSR Council of Ministers decree "On Measures To Increase the Production of High-Quality Spring Wheat Through Intensification of Cultivation in Regions of the Volga, the Urals, Siberia, and Kazakhstan," the oblast's farmers decided to sow 1.1 million hectares of wheat on specially selected and prepared land and, in this way, produce an increase in the gross grain harvest of up to 40 million poods. A whole complex of measures is being carried out to achieve this goal: training of specialists and machinery operators, increased deliveries of mineral fertilizers, wider adoption of the collective contract, and stronger monitoring of compliance with technological discipline. A new item has appeared in the list of competition terms: achieving the highest payback in grain from each kilogram of fertilizer and pesticides, each ruble of input.

The intensive method has found support in all rayons of the oblast. But the greatest volumes have been pledged by Kustanayskiy, Uritskiy, and Naurzumskiy rayons, where farmers will use the technology to cultivate wheat on an area of up to 130,000 hectares each.

It must also be stated, however, that there have been certain difficulties in completing preparations for spring work. A serious situation has developed with regard to preparing the high-powered Kirovets, of which there are about 7,000 in the oblast. The fact is that last winter most of them had to be used to haul feed from other oblasts. Naturally, many of them required unscheduled repairs. At the same time, there is a scarcity of spare parts not only for them but for other tractors. Delays in deliveries of petroleum products are a cause of considerable concern.

The workers of Kustanay Oblast are fully resolved to be thoroughly prepared for the 1985 sowing season, to lay a good foundation for a bumper crop and to have a worthy greeting for the 27th Congress of their dear Communist Party.

6854
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MAJOR CROP PROGRESS AND WEATHER REPORTING

FIELD WORK IN AKTYUBINSK OBLAST

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 14 May 85 p 1

[Article by A. Molchanov, chief agronomist, Aktyubinsk Oblast Agricultural Administration: "Consolidate Accomplishments"]

[Text] The oblast's farm workers are unanimous in their endorsement of the decisions of the April 1985 CPSU Central Committee Plenum. They are resolved to do everything they can to successfully complete the plans and targets of 1985 and the 11th Five-Year Plan as a whole. In the first 4 years they have sold 538,000 tons of grain and 12,600 tons of potatoes over and above the plan. Four-year plans of vegetable and melon crop procurement have been overfulfilled.

As before, the main task is to boost grain production. Agrotechnical and organizational measures have been carried out in the oblast to improve the quality of cultivation and perfect the structure of the crops. In the concluding year of the 11th Five-Year Plan, the grain farmers have decided to produce at last 1.5 million tons of grain and sell 835,000 tons to the state. This year, 1.8 million hectares are to be sown to wheat. That figure will include 870,000 hectares of wheat and 128,000 hectares of millet, and 1,000 hectares will be sown on irrigated land.

The struggle for the harvest began last autumn. The land was carefully prepared for the spring sowing. There is a sufficient quantity of conditioned seed. A most vital factor in boosting crop productivity under the very arid conditions of our oblast is the retention and rational use of moisture in the soil. Hence, the fate of the harvest largely depends on how well moisture retention measures are carried out. On fallow and autumn-plowed lands worked by the mouldboard method, the measure is carried out in two to four passes with zigzag harrows; on subsurface-cultivated autumn-plowed land, use is made of BIG-3 needle harrows.

The spring fieldwork plan calls for separate presowing cultivation of the soil on compacted and weed-infested lands. On lands of light mechanical composition which are free of weeds, the sowing will be carried out using SZS-2.1 and SZS-2.1L stubble seeders without additional cultivation.

This year, for the first time, the intensive technology of wheat cultivation is being introduced. This will make it possible to boost crop yields. It is important, moreover, to utilize all factors of intensification in an integrated way: the optimal predecessor, excellent seed, optimal doses of fertilizers, pesticides, and other plant protection compounds, and overall equipment and technology. This year the oblast's farms have been assigned the task of introducing the intensive technology on 200,000 hectares. They are also supposed to produce at least 16 quintals of grain per hectare on fallow land and 11 quintals of second crop after fallow.

Targets with regard to the intensive technology have been made known to each sovkhoz and kolkhoz. For the purpose, the farms have been allocated the best seed, and rotation crop lands have been assigned to brigades working on the collective contract. Fertilizers have been delivered to the sovkhozes and kolkhozes. A seminar was held at the base of the oblast agricultural experimental station to instruct specialists in the intensive technology of spring wheat cultivation. Instruction was also given to brigade and link leaders and machinery operators.

Each of the 44 farms which are cultivating spring wheat by the intensive technology have been allocated lands in kind. The oblast chemicalization station has determined reserves of nutrients in the soils and calculated mineral fertilizer dosages for each field to produce the desired yield. Each farm maintains accurate technology charts and has set the terms of labor remuneration. Kolkhoz and sovkhoz specialists and machinery operators understand that there are no trivial details under the intensive technology. It will take strict compliance with all components in the complex to guarantee the planned crop yield.

In preparing to introduce the intensive technology, however, we have encountered a number of problems. The sovkhozes and kolkhozes do not have enough seeders for continuous sowing of grain crops. The intensive technology calls for applying the full dose of mineral fertilizers on fallow lands into the root layer of the soil. But there are practically no implements (GUN-4) to do the job, and not many are expected. Not many herbicides to combat wild oats are being produced.

The spring field work is under way in the oblast, and farmworkers are resolved to complete it at a high level of quality and in the optimal time frame.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

KAZAKHSTAN HIT BY RARE MAY SNOWFALL

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 14 May 85 p 3

[Unattributed KazTAG report: "Counteracting the Elements"]

[Text] Old-timers in the republic can't recall such a thing: in the middle of May, abundant snow fell on vast tracts of crop and pastureland and caused a sharp drop in the temperature. But the unfortunate weather did not catch entirelyunawares those farmers and livestock breeders who had thoroughly prepared themselves for the planting and other field operations, for receiving and maintaining young livestock.

Here below are reports concerning collectives of agricultural and other enterprises who are successfully overcoming the difficulties caused by the capricious weather.

Alma-Ata. The snow covered up green sprouts of grain crops, vegetables, and potatoes. Bush and tree limbs bowed down under its weight.

The farmers of Alma-Ata Oblast faced the bad weather not like docile witnesses but like staunch warriors. Weather forecasters had warned of the impending trouble in good time. The party obkom's oblast headquarters to cope with bad weather promptly provided help to the sovkhozes and kolkhozes: for 2 days stacks of firewood were prepared in the orchards and vineyards, and vegetable plantings were watered in order to reduce the temperature on the surface of the soil and thereby "toughen" the plants to resist the cold.

The Leninskiy, Kamenskiy, and Aksay sovkhozes, the KazMIS experimental farm, and other farms that had reserves of polyethylene film got right to work setting up additional arches to cover the vegetables. Aksay Sovkhoz, for example, set them up on 25 hectares in one day.

Emergency seed stocks have been prepared. Machinery operators are checking the equipment for trouble-free operation in the snow-covered fields.

On farms in the foothills and mountains the snow cover was over 15 centimeters by noon, and air temperature dropped as far as minus 4 or minus 7 degrees; on the flatland a blizzard sprang up and a north wind raged.

The sharp drop in temperature considerably complicated the work of the livestock breeders, especially herdsmen who were attending a massive livestock birthing. When the bad weather came on, the entire stock increase was safely under cover in pens and enclosures. Workers from the rayon centers and farm centers were sent out to help the shepherds [sakmanshchiki] on many of the farms.

The night before the blizzard sprang up, bonfires were lit to fill orchards with smoke. In efforts to prevent snowfall damage in Alma-Ata, the town planning and development combine got actively involved, and the emergency services of the administration of electrification and radio network, firefighting teams, and the city's motor vehicle inspectorate were beefed up.

Komsomol brigades were formed in industrial and transport enterprises to help the town planning and development combine.

Ust-Kamenogorsk. Despite the bad weather, farms in East Kazakhstan Oblast are doing a good job of grain sowing.

"This year our farmers were better prepared for spring field work," says N. D. Protasova, chief agronomist of the oblast administration of agriculture. "Last year, 78 percent of the cereal grain seed was of first and second class quality; this year it's 90 percent. All the sovkhozes and kolkhozes have equipped the cleaning complexes with the necessary array of machinery and have used them to full capacity to eliminate weeds and impurities from the grain. Moisture retention work was completed in a short time.

"More than 200 detachments and complexes are involved in the sowing. More than half of them have adopted the collective contract. They are monitoring the pace and quality of the work. Some of the equipment, however, is not ready.

"In recent days, to be sure, the tempo of the sowing has slowed somewhat: rain is falling, sometimes turning to snow. Nevertheless, the machinery operators are trying to utilize the slightest opportunity to complete the sowing--as soon as the weather lets up they immediately take their machines out into the fields. The fastest pace is being set in Tarbagatayskiy, Kurchumskiy, Zaysanskiy, and Markakolskiy rayons. Spring wheat and barley there have been planted on 50 to 70 percent of the sowing area."

The intensive technology of grain cultivation is being adopted on large tracts of land. Mineral fertilizer is applied along with the seed, and herbicides are being used to combat weeds. The fallow land area has been expanded by 30,000 hectares. Variety renewal is being conducted on a systematic basis.

Kustanay. Farmers of the biggest grain basket in Kazakhstan have completed moisture retention operations on the entire grain crop area. They passed an especially difficult exam in recent days, caused by the sharp drop in temperature and the snow that fell in many areas. In the face of the bad weather, they brought to bear excellent organization and mutual aid.

The work went round the clock, men and equipment were efficiently shifted to sections where the condition of the soil made it possible to carry out pre-sowing cultivation. Well-equipped technical service teams came out without delay to provide help at any time. Moisture retention was carried out on nearly 1 million hectares every day.

Machinery operators drove carefully serviced machines into the fields and did not allow deviations from technological requirements. Harrowing and rolling of the soil were completed on large areas with minimal disruptions.

The oblast's farmers have brought the entire sowing machinery complex to the starting lines in order to start the grain crop sowing in a well-organized manner.

Weather Forecaster's Commentary

It is not for nothing that people say, "It hit like a pile of snow." Citizens have become convinced of the correctness of this saying in a number of oblasts of our republic, where it was warm and even hot in some places, but yesterday morning an unexpected snowstorm occurred. Trees and bushes bowed down under the weight of the white snowcaps. Branches of some of them could not hold out and crashed to the ground. Thousands of people turned out to help their green friends and clear the snow from the trees.

"This event, which is unusual for the middle of May, came about because the atmosphere at present is kind of 'feverish,'" says G. M. Bondar, chief forecaster of the Kazakh Hydrometeorological Center. "First warm air comes in from the south, then cold air comes in from the Arctic. This time the invasion of cold air came from around the Kara Sea and the Taymyr Peninsula. This led to the formation of thick clouds. Then it started to rain, turning quickly to snow, and the snow piled up in some districts to 10 centimeters. Air temperatures dropped to 12 degrees below zero, which is close to the absolute minimum for these regions. Temperatures dropped to between 2 and 3 degrees below zero even in the southern rayons. The force of the freeze was unusual, especially for southeastern districts of Kazakhstan.

"This kind of occurrence happens about once every 50 years. It is true that in Alma-Ata something like it happened at about the same time in 1983. But there wasn't as much snow that time, although fruit and vegetable crops suffered all the same.

"Now the cold is heading east. The temperature will rise. There is the danger, however, that it could happen again on 17 or 18 May. This means that all managers must be ready for any weather surprises."

Forecast for 14 and 15 May

No precipitation is expected over most of Kazakhstan. Rain and gusty winds are expected only in the west and north. Temperatures in the north from 10 to 15, in the west from 17 to 20, in the east and central portions 3 to 8, in the southeast 5 to 10, and in the southern portions 7 to 12 degrees above zero.

No precipitation in Alma-Ata today. Temperatures should be 7 to 9 degrees above zero.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

SOWING PROGRESS IN KAZAKHSTAN

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 16 May 85 p 1

[Untitled KazTAG report]

[Excerpts] The sovkhozes and kolkhozes of the northern oblasts--the main ones involved in the republic's grain production--have started sowing the basic food crop. Thousands of machines equipped with seeders filled with high-quality spring wheat seed have moved out across the vast fields, in which soil cultivation and moisture retention operations were completed in good time.

This agricultural campaign--so crucial in producing a good crop--got under way under conditions of abrupt changes in the weather. The farmers have brought to bear against the treacherous caprices of spring weather their thorough preparation for intensive effort, well-thought-through organization, discipline and order, and a good, productive mood. The quality of the sowing is better than before, and the crop area where wheat will be grown by the intensive technology has been considerably expanded. Machinery operators are better equipped, their knowledge and experience is growing, and more fertilizers are being used.

Farmers are responding to the decisions of the April 1985 CPSU Central Committee Plenum with a further upsurge in labor commitment and stronger concern for observance of optimal sowing timetables and compliance with all agrotechnical requirements in order to lay a firm foundation for the harvest of the concluding year of the five-year plan, to boost their own contribution to implementation of the Food Program, and have a worthy greeting to the 27th CPSU Congress.

Here are reports from KazTAG correspondents concerning the sowing season in the Virgin Lands.

Kustanay

Massive sowing operations are under way on all farms of the oblast. The delayed onset of spring put the farmers in a tough situation. In order to get done on time, they plan to do the work at night as well. Manpower and equipment will be maneuvered on a broad basis. On 1.1 million hectares, spring wheat will be grown by the intensive method. Plantings of durum varieties will be increased.

Unregulated collectives, the number of which has risen substantially, will help successful efforts to raise a good crop. They will have 80 percent of the cropland in their care. All the sowing equipment and machinery has been formed into complexes, and the large-group method is being used.

Tselinograd

A. Tselbel and his sons Nikolay and Sergey were the first to drive their machines out into the fields on 40 Years of Kazakhstan Sovkhoz. They all belong to P. Gildebrant's brigade, which has converted to the collective contract. The brigade is cultivating wheat by the intensive technology on 1,000 hectares. The whole area has been fertilized in accordance with agrotechnical regulations. Mostly caterpillar tractors were used for the job.

The farm's workers have their own approach to fields threatened by wild oats. They have decided to let the weeds grow and then destroy them.

"We are carrying out all fieldwork," says chief agronomist G. Rudnik, "in such a manner as to retain maximum moisture in the soil. Moisture reserves are encouraging. Now our task is to take advantage of the most favorable times for sowing each section."

Other agronomists and machinery operators of the oblast are equally concerned these days. Some 25,000 grain seeders and more than 20,000 tractors are involved. On nearly 1 million hectares--about one-third of the total area--wheat is being raised by the intensive technology. Fallow tracts and sections with the best predecessors are being sown to wheat.

The sowing machinery is operating in two shifts. A reserve of spare parts and components has been stockpiled for them.

Arkalyk

Farmers of the oblast had to start the sowing of spring wheat under conditions of a late spring, unexpected frosts, and rain. On the very first day many machinery operators completed 1.5 to 2 times more than the normal area. Motivation to speed the tempo and improve the quality of the work has been enhanced by the collective contract, which half of the tractor-fieldwork brigades have adopted.

Some 2 million hectares in the oblast are to be sown to spring wheat. The sowing was started first in districts where shallow plowing was completed last autumn, wild oats sprouted in the early spring and were then destroyed. From the very first day many of the farms began to maneuver machinery and equipment about and introduced double-shift operations.

This year, wheat varieties that are most adapted to local, soil, and climatic conditions will be cultivated everywhere.

Farm party organizations are focusing more attention on the organization of competition among machinery operators.

Petropavlovsk

Farmers in northern Kazakhstan, who initiated republic competition for high-quality implementation of the vital agricultural campaign, are matching their advanced technology and shrewdness against the bad weather and have begun sowing operations. Even under difficult weather conditions they are true to the main requirement of scientifically substantiated agrotechnical procedures: the seed must be implanted only in soil that has been cleared of weeds. In places where the weeds have not sprouted, because of the cold weather, farmers are putting herbicides into the soil to combat wild oats. Goskomselkhoztekhnika and the farms have collaborated to manufacture more than 20,000 hoe colters. They are attached to the seeders to introduce a full dosage of mineral fertilizer into the soil. In this way they can be implanted deeper than the seeds are, a process which pays off in bigger yields.

Other reserves to boost the payoff have also been put into action. On 500,000 hectares--half the total area--wheat is being raised by the intensive technology. Twice as many machinery operator brigades and links are working on the collective contract as last year.

The farms have drawn up intensive field work schedules. They call for sowing the same amount in 3 days as it used to take 4 days. They are borrowing the experience of the Voskhod and Iskra sovkhozes, where sowing is generally completed in a week.

Pavlodar

Farmers of the Pavlodar district along the Irtysh are counting on the integrated utilization of their machinery and tractor fleet. Having started massive grain seed planting on well-prepared soil, they have driven more than 1500 units out in the field at one time.

After the frosts and snowstorms, the land dried out, and agronomists on most of the farms gave the go-ahead. Strong and durum varieties of wheat will be sown on almost a million hectares.

The large-group method of conducting field work will help to shorten the usual sowing timetable. The guarantee of this is excellent preparation by the

machinery operators and engineers. Seminars were held in the rayons in the early spring to master the experience of the best integrated detachments, and a sowing strategy was worked out. Reciprocal checking of equipment, the fields, and seed was also carried out.

About 40 percent of the machinery operators have drawn up contract agreements with the farms. This has enhanced their motivation to maximize the end result. The per-shift output of tractor units is greater than previous years, and the quality of the work is better. Mineral fertilizers are put into the soil along with the seed. The farmers have decided to employ the intensive technology on 300,000 hectares.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

SOWING PREPARATIONS NEAR COMPLETION IN NORTHERN KAZAKHSTAN

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 12 May 85 p 1

[KazTAG report: "Ready for the Sowing"]

[Text] Farmers of the republic's northern oblasts have laid the foundation for a good water supply to the crops. They completed early spring harrowing of the land on the whole area allocated to grain--more than 15 million hectares. Thanks to the use of wide-span units pulling up to 30 hitched harrows each, and by working the crews on the watch method, each agrotechnical procedure was carried out in record time--2 days.

Spring wheat sowing in the northern oblasts is strictly regulated by zonal cultivation systems. It is carried out in 10 days--15 through 25 May. It is difficult, therefore, to exaggerate the role of early cultivation to loosen the soil. The moisture is thus retained. Thanks to early harrowing, weeds sprout massively prior to the sowing. They are destroyed by pre-sowing cultivation.

Good moisture saturation of the soil has made it possible to apply spring feeding of the crop land with phosphorus and other fertilizers. The republic's farmers have been allocated a quarter million tons more of them than in previous years. Each hectare of fallow land is to get 60 kilograms of superphosphate, the dosage scientists recommend. The fertilizer is applied by means of anti-erosion seeders, right into the moist layer at a depth of 10 centimeters. According to the All-Union Scientific Research Institute of Grain Farming in Shortandy, this will substantially increase spring wheat yields and improve their quality. Hundreds of thousands of hectares in the northern oblasts have been fertilized by that method.

Final preparations for the sowing are nearing completion. Grain seeds on the farms are mainly first and second class. All the equipment is in working order. The fleet has been augmented by the addition of Kirovets tractors and anti-erosion implements. Two-thirds of the field work brigades have converted to the collective contract. They have been given the fields, the machinery, and everything else necessary to conduct the sowing in an excellent manner.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

FIELD WORK PROGRESS, WEATHER CONDITIONS IN KAZAKHSTAN

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 20 Apr 85 p 3

[Article by G. Maslov, Yu. Peshkov, I. Yavorovskiy, V. Vedenko, of Kokchetav, Turgay, Tselinograd and Kustanay oblasts: "What One Enters the Fields With: Raid by KAZAKHSTANSKAYA PRAVDA"]

[Text] In southern Kazakhstan spring reigns supreme. It has altered the sense of time that we are accustomed to at other periods of the year. The farmer measures time not by hours or days but by the volume of work carried out in the field. Here, spring sowing is in full swing and winter crop care is in progress.

However, southern Kazakhstan is only a small part of the immense arable lands of Kazakhstan. The grain farmers of the main grain fields--the virgin lands--are preparing for the hour of shock labor. The type of harvest cultivated on the virgin lands always affects the size of the grain harvest not only in the republic but in the country as well.

This year Kazakhstan's farmers must produce as large a harvest as possible in order to make up for the underproduction of previous dry years. All reserves are being mobilized for this, and this includes, above all, the quality of grain production. This year on an area of almost 5 million hectares wheat is being cultivated according to intensive technology. This is half of the country's spring fields, allocated for innovative crop cultivation. Our own correspondents will tell us how virgin-lands farmers are preparing for intensifying grain production, what has already been accomplished and what remains to be done.

Much Has Been Accomplished, But Not Everything

In Kokchetav Oblast this spring has shown its capriciousness more than once. Quite recently it suddenly sent such a supply of snow that one could not even see a high-rise dwelling at a distance of 100 meters due to the twirling white snow.

In some regions there was rainfall and in others there was no precipitation at all. In other words, on the eve of spring sowing nature once again reminded farmers that they are working in a zone that in risky for grain cultivation.

Spring is a time of hope for the grain farmer. And the more difficult the spring, the more careful the farmer is in his predictions about the size of the harvest.

However, in recent years a number of the oblast's enterprises have produced large yields of grain with stability regardless of weather conditions. Here farmers are looking forward more and more boldly and are predicting the size of the harvest more precisely. For example, the farmers of Zlatopol'skiy and of Kotyrkol'skiy Sovkhoz-Technical School intend to produce 19.5-20.0 quintals of grain per hectare. A 100-pood harvest is planned by Urumkayskiy, Berlikskiy and Oktyabr'skiy enterprises, by the Sepnoishimskaya Experimental Station and by many other enterprises in the oblast.

On the basis of a zonal soil-conservation system of farming, an intensive technology for cultivating wheat is being assimilated here. By utilizing the experience and achievements of enterprises found in similar regions, Kokchetav farmers will introduce this technology on a wide scale--1 million hectares--beginning this spring.

"The best predecessors have been earmarked for intensive technology," says the deputy director of the oblast agricultural administration, N. Barabash. "We will place wheat on 550,000 hectares of fallow and on 450,000 hectares wheat will be the second crop after fallow. The proportion of intensive agro-technology is especially great in Shchuchinskiy, Zerendinskiy and Arykbalykskiy rayons, where about one-third of all wheat crops are earmarked for the new technology. The farmers of Leningradskiy, Chkalovskiy, Kzyltuskiy and other rayons have actively taken on the assimilation of this technology."

The good intentions of grain farmers are being supported by the state. Kokchetav farmers have been allocated an additional 59,000 tons of mineral fertilizer in active substance for intensive technology; in the course of 1 year fertilizer supplies will increase by a factor of 1.6. Fertilizer supplies during the fourth quarter of last year and the first quarter of this year exceeded previous volumes several times over. At present enterprises are working at an accelerated rate to ready machines that are in short supply and that are used to measure out fertilizers and to load them automatically.

There has been significant growth in supplies of means to protect plants against weeds, pests and diseases. Herbicides of the triallat type have been supplied to combat wild oats on about 150,000 hectares of crops; this is almost a ten-fold increase over last year.

Much is being done by enterprises themselves. For example, there has been a noticeable increase in the proportion of high-class seed; the area in intensive varieties of grains will increase. Almost 80 percent of fields on which intensive technology will be introduced have been assigned to contract brigades.

However, in the course of preparations for spring serious shortcomings have appeared in a number of regions in the oblast. First of all, we have been alerted by the lags in the preparation of tractors, cultivators and trucks as compared to last year. After all, we know that without dependable equipment talk of intensive technolgy will remain a good intention. There is special concern for the low level of readiness of powerful Kirovets tractors in Volodarskiy, Enbekshil'derskiy, Ruzayevskiy and Zerendinskiy rayons. A great deal of equipment has not been readied in Valikhanovskiy, Leningradskiy, Zerendingskiy and Chistopol'skiy rayons.

The quality of sowing material is also alarming. Incomplete work by the agricultural services of many enterprises hides behind adequate average oblast indicators. Suffice it to say that in Valikhanovskiy, Leninskiy and Kokchetavskiy rayons the proportion of first-class seed equals only 5-12.3 percent.

Many enterprises in Kzyltuskiy, Enbekshil'derskiy, Kuybyshevskiy and Leningradskiy rayons are delaying the delivery of mineral fertilizers, which lie around a long time on bases and in regional divisions of Sel'khozkhimiya [Agricultural Chemical Association]. It would be to the point to say that growth in the delivery of mineral fertilizers revealed serious shortcomings in the development of the material-technical base. Already in the near future storage capacities for mineral fertilizers will have to be at least doubled in enterprises and within the Sel'khozkhimiya system.

As of spring of the final year of the five-year plan many of the oblast's enterprises still had not completed everything. In the time remaining, both farmers and their partners within the agro-industrial complex must make every effort to greet spring sowing truly fully armed.

Assimilating the New

In Turgay Oblast almost 2.2 million hectares will be occupied by grain crops this year; of this amount, about 2 million hectares are earmarked for wheat. Over 5,000 units will perform sowing operations. Right now their preparation for work is being completed. In the sovkhozes of the southern part of the oblast machine operators have traveled to field stations and have begun arranging equipment into units.

Today an innovation is coming to Turgay fields--the so-called strip sower of the SZS-2.1L brand. Its sowing element is equipped with dividers so that during sowing seed is placed in the soil not in a "thread" but in a "strip" pattern. The area from which seed can draw nutrition will increase, which will have a favorable effect on germination capacity and on the harvest.

Eighty-five percent of the tractor fleet in enterprises has been readied. As in past years, Turgay workers will use K-700 machines extensively for sowing. There are over 4,100 of these in the oblast. Almost all of them have been repaired; only 40 Kirovets tractors are standing idle. They are without motors, which Atbasarskiy Repair-Mechanical Plant failed to deliver on schedule.

In enterprises there is a shortage of some soil-cultivation equipment. For example, the fields of Zhaksynskiy and Kiyminskiy rayons are greatly infested with wild oats. Stubble breakers are needed to combat them. But in the aforementioned rayons there is a shortage of about 100 units. But in general all enterprises have been supplied with the necessary equipment. Thus, for example, the load per grain sower is 111 hectares, which corresponds to the norm. The main thing now is to achieve the uninterrupted operation of units.

This year special attention is being given to cultivating wheat according to intensive technology. In the oblast 300,000 hectares have been earmarked for wheat. A zone consisting of five rayons has been assigned to cultivate it--Yesil'skiy, Zhaksynskiy, Kiyminskiy, Oktyabr'skiy and Derzhavinskiy. Fifty enterprises, including Ishimskiy, imeni Lenin, Druzhba and Kiyminskiy sovkhozes and Znamya Truda Kolkhoz, will cultivate wheat there according to intensive technology. These are large grain producers. Here wheat will be sown following fallow and as the second crop after fallow. It is planned to apply mineral fertilizers simultaneously with sowing. Turgay farmers have already stockpiled over 9,000 tons of mineral fertilizer in active substance. Stocks consist mainly of phosphorus fertilizers. Everything has been readied for the struggle against dicotyledonous weeds. Triallat is being brought in to destroy wild oats.

Intensive technology is being assimilated by 190 brigades, two-thirds of which are working according to collective contracts. At the Turgay Oblast Agricultural Station brigade leaders and agronomists learn the fundamentals of the new technology. Over 2,500 machine operators have received training in enterprises.

Turgay farmers expect to produce an additional 120,000 tons of grain as a result of utilizing intensive technology.

Harvest--According to Seed

In Tselinograd Oblast the grain farmers of Krasnoyarskiy Sovkhoz always produce stable harvests. This is the result of high-quality farming. In the enterprise a great deal of attention is given to seed. As a rule, each year here seed is brought up to a high sowing condition. Excellent seed has been prepared for this year's sowing period as well. All of the seed is first class.

Priority importance is attached to the seed fund by the Tselinograd Production Association on Poultry Raising as well. Here all seed is also first class. It is no accident that these two enterprises usually achieve the highest yields in the region.

Most of the other sovkhozes and kolkhozes in the oblast have a good seed fund. Of 161 enterprises, 135 have already completed the preparation of seed material. Moreover, in many enterprises there is a prevalence of first-class seed. Thus, in Yermentauskiy Rayon about 70 percent of the seed is first-class.

However, it cannot be said that if seed is conditioned it is uniform in quality. For example, in that same Tselinogradskiy Rayon there are some enterprises, such as Il'inovskiy Sovkhoz and Shalkarskoye Rayspetskhozob"yedininiye [Rayon Association of Specialized Enterprises], which have no first-class seed at all. Such enterprises exist in other rayons as well; many of them will have to sow unconditioned seed. In Krasnogvardeyskiy Sovkhoz of Astrakhanskiy Rayon only 77 percent of seed is conditioned. In the experimental enterprise of VNIIZKh [All-Union Scientific Research Institute of Grain Farming] the situation is even worse. Of the 8,750 tons of seed that were examined, over 5,000 tons are not conditioned. The supply of conditioned seed is lower than oblast indicators in Marinovskiy and Seletinskiy rayons. This is the result of violations of the agrotechnology for cultivating grain crops for seed.

In some enterprises a significant portion of barley and oats seed is infected with smut. In Marinovskiy Sovkhoz of Atbasarskiy Rayon there are 744 tons of such seed, in Izobil'nov Sovkhoz of Seletinskiy Rayon--679 tons and in the Kurgal'dzhinskoye RSKhO [Rayon agricultural association]--500 tons. The agronomic services of these enterprises should approach the chemical treatment of seed infected with smut spores with special care. In some sovkhozes and kolkhozes there is seed that is infested with wild oats and with admixtures of other crops. Here the situation can be corrected to some degree if measures are taken to carry out supplementary cleaning.

Some rayons must receive a portion of seed from enterprises of the oblast administration of grain products in the form of an exchange. This equals a sum total of 20,000 tons of wheat and about 6,970 tons of barley. However, by mid-April only 4,849 tons of wheat and slightly more than 1 ton of barley had been selected. Deliveries were not begun at all in Marinovskiy and Yermetauskiy rayons. Yet time hurries us on. After all, the time will soon come to begin the air-thermal warming of seed. Incidentally, some enterprises still have not prepared platforms for this.

This year wheat will be cultivated according to intensive technology on 900,000 hectares in the oblast.

Giving Strength to the Hectare

This year spring wheat will be cultivated according to intensive technology on an area of 1.1 million hectares in Kustanay Oblast. Moreover, on 600,000 hectares it will follow fallow and on the remainder of the area it will be the second crop after fallow.

An important element of the new technology is comrehensive chemicalization--the application of the required doses of mineral and organic fertilizers. After all, the growth in productivity has been hindered to a considerable degree until now by a shortage in the soil of nutritional elements, especially phosphorus.

This year in the oblast it is planned to apply up to 60 kilograms of active substance per hectare of fallow depending upon the moisture content of the soil. For other predecessors, where the potential is lower, 20 kilograms will be

applied. This should achieve a wheat productivity of 17-22 quintals. Total growth in yield should equal about 40 million poods of grain.

The oblast has been given an adequate "advance" for the production of such a harvest--the annual fund of mineral fertilizers has been increased to 60,000 tons of active substance, or by more than a factor of 1.5. For spring sowing alone 107,000 tons of mineral fertilizer will be applied. Of this amount, 73,000 tons were stockpiled prior to 1 April. The remainder is being delivered from enterprises on schedule.

Now other questions are becoming important--where to store this amount of fertilizer, and how to achieve its timely application. The oblast association of Sel'khozkhimiya, through which mineral fertilizer is obtained, has 10 bases. However, they are not capable of storing such a large amount of fertilizer. This should not be necessary anyway. Mineral fertilizers should be stockpiled nearer to fields; during the sowing period there will be no time to fetch them from bases. But many enterprises still do not have their own storehouses; in the best of cases they "store" their fertilizers on threshing floors under a panel.

A few years ago, perhaps, the senior engineer of the association, A. Gurin, would not have spoken about this with such vexation. But now Sel'khozkhimiya is already responsible, even if indirectly, for the end result--the harvest. The outlook for it decreases considerably until the planned fertilizers reach other sovkhozes.

According to an assignment by the oblast executive committee, in the course of the five-year plan enterprises were to build storehouses with a total capacity of 25,800 tons. In 4 years capacities for only 14,000 tons have been introduced. Not a single rayon managed to fulfill its obligation. Those that are lagging especially are Komsomol'skiy, Karasuskiy and Fedorovskiy. Meanwhile Sel'khozkhimiya has already delivered over 60,000 tons of mineral fertilizers to enterprises.

Also important is the condition of fertilizer loaders, sowers and even of mechanized threshing floors. The fact is that both crumpled and pulverized granules get caught. In order to keep them from clogging fertilizer ducts on sowers, sifting must take place first. Usually this procedure is carried out by the equipment on the threshing floor.

Recently there have been improvements in the situation involving the quantity and quality of sowers which allow farmers to apply fertilizer simultaneously. Thank you to industry and supply organizations for this. But things are worse when it comes to loaders. Not a single one has arrived in the oblast since the beginning of the five-year plan. Enterprises themselves are mechanizing the loading of sowers with fertilizers in whichever way they come up with. Here we must thank our own skilful workers.

In the oblast the delivery of organic fertilizers to fields has doubled. However, the quantity is still far below the amount needed by the soil. Enterprises have been assigned the task of applying a minimum of 9 million tons of manure to plowland. At present 5 million tons have been applied to this year's harvest.

In fertilizing fields, enterprises expect a great deal of aid from Sel'khozkhimiya, which is still delivering only one-fifth of the total amount of organic fertilizer. In the association there is agreement with this. But there are complaints about the fact that piles instead of manure-storehouses are often created in sovkhozes. Anything can be found in the manure--household waste, parts of trees and pieces of metal! If mechanized detachments begin spreading this manure the complex equipment soon breaks down.

Chemicalization means an active struggle against weeds as well. There are still large amounts of wild oats on Kustanay fields. Now the oblast has been allocated the herbicide triallat for chemical weeding of 100,000 hectares. This is not enough to treat the entire infested area, but it is almost twenty times more than was supplied previously.

Enterprises in the virgin lands have been allocated additional meterial resources and equipment for the successful introduction of intensive technology. Now this help must be directed at producing a large harvest. In the time remaining until the start of field work, directors of enterprises, specialists and rayon agro-industrial associations must eliminate shortcomings in preparations. Much remains to be done. First and foremost it is important to speed up the repair of equipment, to bring seed up to good condition, to make sure that every enterprise is supplied with allocated fertilizers and means of plant protection, to create sowing units, to equip brigades and links and to think out labor organization and conditions for socialist competition on spring fields. There should be special concern for organizing the everyday life of and services to people. This is how we must now evaluate the level of organizational and political work by party organs and soviet and administrative organizations in the village.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

SOUTHERN KAZAKH SOWING PREPARATIONS--(KazTAG)--The sowing front in southern Kazakhstan extends a thousand kilometers. The farmers of Alma-Ata, Taldy-Kurgan, and Kzyl-Orda oblasts have started putting grain seed into the soil. Following the Virgin Lands example, most of the local farms give preference to the soil-protective system of cultivation; the plow has given way to the subsurface cultivator, and ordinary seeders have given way to stubble seeders. Farmers in semi-arid districts plant wheat, barley and peas in strips 60 meters wide between strips of wheat grass of the same width. The grass protects the crops against dry, hot winds and eliminates soil erosion. The effectiveness of strip deployment and subsurface cultivation is enhanced by wooded belts which cross the fields athwart prevailing winds. The farmers are scheduling only 5 days to sow the grain. The tempo is speeded by the use of large-group equipment in two shifts as well as excellent organization of field machinery services. Every brigade has organized nighttime preventive maintenance and repairs of equipment. Many of the sowing complexes include mobile shops. Machinery operators are working very productively and on a high level of quality. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 9 Apr 85 p 1] 6854

SOUTHERN KAZAKH SOWING COMPLETED--(KazTAG)--Farmers in the southern oblasts completed grain sowing operations under abruptly changeable weather conditions. For the first time, all grain crop operations were carried out using anti-erosion technology by which they hope to boost yields substantially. Dry land grain crops have been deployed on subsurface-cultivated soil with the stubble retained. Compost has been spread on almost 1 million hectares. Supplies came from range livestock sections where many years of fertilizer reserves had accumulated. Necessary dosages of minerals have been applied along with the seeds by means of stubble seeders. Only drought-resistant varieties of wheat and barley are planted. Widely sown on irrigated lands is Kazakhstanskaya-4, a zone-adapted locally bred variety capable of producing up to 80 quintals of grain per hectare. Grain crops are sown on 3 million hectares of the republic. The capricious late spring has imposed special demands on the pace of the work. Machinery operators are working on the watch method. Each complex has teams to service the units in the field and fill them with seed and fuel. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 14 May 85 p 1] 6854

SEVERE WINTER IN UST-KAMENOGORSK--Ust-Kamenogorsk (TASS)--"The roe deer migrates on wings of wind," says the old Kazakh proverb, and it ought to be taken literally: when the warm winds began to blow, the roe deer began their mass migration from the Kuludzhun Game Sanctuary. The routes of their movement coincide very closely with the pattern of the "wind rose"; having wintered in Samarskiy Rayon, the herds head to their permanent habitats in Kurchumskiy, Tavricheskiy, and Ulanskiy rayons--along the lines of prevailing air currents. The animals have also chosen their winter habitat on the basis of the winds: the vast, abundantly grassy plateau is windswept, and even during the severest weather the ground is not snow-covered. To this spacious area of 40,000 hectares come animals from vast adjacent territories. Wild boars and rabbits, foxes and moose, wolves, and even eagles, which generally fly to the south, have been coming here to the refuge for several years to winter. Rich as the Kuludzhun Plateau is, however, sometimes it is not able to feed this annually increasing family. Man has come to their aid. This past severe winter, refuge game wardens fed the wild animals hay, grain residues, and straw. [Text] [Moscow SELSKAYA ZHIZN in Russian 30 Apr 85 p 4] 6854

KAZAKH GRAIN CROPS FERTILIZED--Alma-Ata, 7 [May] (TASS)--Kazakhstan's grain farmers have gained the capability of boosting winter grain crops. Selkhozkhimiya detachments, in collaboration with agricultural pilots, have completed the application of mineral fertilizers to the crops in optimum time. Putting additional reserves also helped in carrying out vital agrotechnical measures. Mineral fertilizers were delivered to the landing strips in good time, and all loading and unloading operations were carried out without manual labor. [Text] [Moscow SELSKAYA ZHIZN in Russian 8 May 85 p 1] 6854

SNOWFALL IN KAZAKHSTAN--Alma-Ata, 13 [May]--Spring frosts in southern Kazakhstan are no rarity. But today the weather brought an unexpected surprise, one which did not please either city dwellers or farm workers. Temperatures dropped abruptly at night, and toward morning rain turned to thick snow. Trees began to bend and break under the weight of the wet white cover. Such intense precipitation and sudden drops in temperature at this time of year in the southern part of the republic happen only two or three times in a century. The reason for the change in the weather is the invasion of cold air masses from regions of the Kara Sea and the Taymyr Peninsula. [By PRAVDA correspondent A. Petrushov] [Text] [Moscow PRAVDA in Russian 14 May 85 p 6] 6854

KAZAKH WHEAT SOWING COMPLETED--Alma-Ata, 25 [May] (TASS)--The republic's machinery operators have completed the sowing of wheat on land where it is being cultivated by the intensive technology. This year the technology is being used on almost 5 million hectares and should ensure a yield increase of at last 2.6 million tons of grain. Preference is given to high-yield varieties of strong and durum wheat--primarily Omskaya-9, Kharkovskaya-46, and Tselinnaya-21. Last year, despite extremely dry conditions, more than 100 farms which had sown these varieties produced per-hectare grain yields of 20 quintals. Now the tempo of the grain crop sowing in the republic is faster. Kazakhstan's grain farmers are in a mood to complete the sowing by 1 June. [Text] [Moscow SELSKAYA ZHIZN in Russian 26 May 85 p 1] 6854

15 MILLION HECTARES SOWN--Alma-Ata--Yesterday, Kazakhstan's farmers completed the planting of grain seeds in the soil on their 15 millionth hectare. A substantial contribution toward speeding the work is being made by contract brigades formed this year in most of the districts of the Virgin Lands. One out of every 4 hectares this year are to be sown with new high-yield grain varieties. [Text] [Moscow TRUD in Russian 25 May 85 p 1] 6854

SOWING WORK BASICALLY COMPLETED--Sowing work in the country has basically been completed. Fodder laying in is gathering pace. Sown and meadow grasses had been gathered by 10 June from the first cutting on an area of 8.5 million hectares. Over 3 million metric tons of hay have been laid in. (Video shows the figures 8.5 million hectares and 3.2 million metric tons. The screen caption reads "USSR CSA repent throughout) [From the Vremya newscast; announcer-read report with screen caption "USSR CSA Report"] [Text] [Moscow television Service in Russian 1700 GMT 13 Jun 85 LD]

CSO: 1824/461

POST HARVEST CROP PROCESSING

ACCOUNTING, CONTROL OVER MATERIAL RESOURCES AT SOVKHOZES CRITICIZED

Feuilleton Satirizes State Farm Theft

Moscow SELSKOYE KHOZYAYSTVO ROSSII in Russian No 11, Nov 84 pp 41-42

[Article by A. Gusakov: "Fruit Disease"]

[Text] On one occasion during a very cold winter period, Viktor Pavlovich Byakov [byaka--child talk for anything smelly that should not be touched] awoke in a cold sweat. In his sleep, Byakov was haunted by his mother-in-law Matil'da Ivanovna. In the beginning, his mother-in-law danced, swung a dagger and cried, "Aha!" Later she turned into a bookkeeper and began to prepare a document for container glassware that Viktor Pavlovich had emptied from the burden of strong wines and bitter liqueurs. And at the end of Byakov's dream, she began to grumble, rattle and unexpectedly turned into a pneumatic shooter and fired a round at her son-in-law with a large-caliber pistol.

In order to clear his central nervous system, Viktor Pavlovich loaded two "jiggers" into a glass, took a deep breath, inhaled the fluid and lit up a cigarette. But at this point he immediately became concerned: he could not recognize the fluid--it could be Streletskaya vodka, or pardon the expression--h-two-o.

"Well, it is finished," Byakov reproached himself, "I have lost the taste. My mouth is dry and there is an odd sensation in the pit of my stomach."

He pulled on his jeans. He carefully thrust his feet into his felt boots, the portion of which bore the label "100,000 without major repairs." He clapped on an otter cap and proceeded to the door with a sailor's gait.

In the yard, the short winter day had just begun. The sky had already lost its carbon paper blackness and had turned grey-blue in color similar to a tattoo. In the frozen silence, Byakov's tractor stood by the gates where it was left the night before. Moreover, Byakov was so accustomed to the sound of his toil-worn diesel engine that he never really heard it: he never choked the motor so as to be sure that it would not stop. And if the tractor did suddenly stop, Viktor Pavlovich would sense the silence only to a minor degree.

From the seat of his tractor, Byakov operated a pedal with his trembling foot, groped for the lever and moved his equipment towards the public health center, in the interest of placing his fragile young body in the hands of Pipol'fenov, an elerly and intellectual individual.

"Pipol'fenych, what foolishness," the patient said, suddenly feeling shy as he crossed the threshold of the medical institution. "I have lost my taste. Besides I'm having nightmares. It's as if somebody planted my intestinal tract on a pine pole. Must be exhaustion..."

"Did you drink yesterday?" asked the meticulous and experienced Pipol'fenov, as he attempted to reconstruct the situation.

"Yes, Ivan Rodionych, just a small amount. Port wine, 18 volts. Four vials with some good appetizers."

"Dear Viktor Pavlovich" the medical orderly said with a majestic glance at the tractor operator, "mankind has still not invented an appetizer that could neutralize the effect of 2 liters of port wine!"

And Pipol'fenov began to knead Byakov's stomach, thumped the rib cage, looked at his tongue and peepers, tapped his knees with a rubber hammer and asked him to close his eyes and touch the end of his nose with a finger.

Byakov closed his eyes as tight as he could and putting his heart into the effort, almost blinded himself with his finger.

"So why are you trying to make a sharpshooter out of me old man"? he asked the medical orderly in an offended manner, and rubbed the eye with his fist. "Tell me about my illness."

"Was it not you, Viktor Pavlovich, together with Mishka Sapogov that you put a goat on old lady Ul'yana's roof day before yesterday and then demanded a bottle of home-made brew in order to remove it," continued the village wise man as he gathered information concerning the development of the illness.

"What was, was!" admitted the patient.

"And how are your headaches? Do they bother you?"

"Yeah, until I take the treatment [a drink], it bothers me. The head "clangs" just like a bell" Byakov said.

"And when you stand up quickly, do you tend to black out?" asked the representative of the most humane profession.

"Until I take some treatment, it is pitch dark," the patient insisted.

"Is your working efficiency lowered? Do you tire quickly or experience nausea?"

"The moment I think of work, be it cultivation or snow plowing, I become nauseous. My dear friend Rodionych, it scares that I am afraid to work.

Pipol'fenov ceremoniously stood up from his desk, cheerfully strode about the consulting room, and rubbing his hands, stated:

"Then everything is quite clear. My dear friend, you are afflicted with a fruit disease!"

"Will I live?" asked Byakov, somewhat shaken.

"In all probability. The course and character of fruit disease have been studied adequately and there will be no surprises here. And do you know why this disease is referred to as fruit disease or even pear disease? Because those who suffer from it, as they say, go about banging pears throughout the year." [slang expression, i.e. do nothing]

"You hit the nail right on the head," stated Byakov, delighted by the accurate diagnosis, "But what do we do now?"

"First of all, you must rest, eat good food, drink a lot of liquids and avoid adverse emotions. Obviously, you must consume Vitamin C and in the morning -- sauerkraut. Ideally, you should read a book following dinner. At times, it may be beneficial for you to take a vacation. It is my opinion that the kolkhoz administration will respect the aimlessness of your existence and aid you in this respect."

"But where could I, a severely sick individual, take a trip?" asked Viktor Pavlovich in turn.

"You could go to Oymurskiy or Baykalo-Kudarinskiy."

"Are these rest homes?" asked the lover of leisure.

"They are sovkhozes in the Buryat ASSR" replied Rodionych, "But as in the case on many farms in this autonomous republic, extremely fine conditions have been created here for victims of fruit disease. At Baykalo-Kudarinskiy, for example, a bonus of 871 rubles was paid out to tractor operators during the first quarter of 1984 for having realized a savings in the use of diesel fuel: it is said they they consumed only 62,656 liters against a norm of 96,384 liters. But even the director Anatoliy Vladimirovich Shabanov could not state with confidence that this was indeed a savings. Perhaps it was an addition rather than a savings."

"Perhaps I could go to the Baykalo-Kudarinskiy Sovkhoz" agreed Byakov, by nature compliant, "In the case of my disease, a bonus would be a matter of prime concern."

"Viktor Pavlovich, do not be in a hurry" stated Ivan Rodionych restraining the patient. "Oymurskiy is no worse. And you will find kindred souls there. There will at least be the drivers Berezovskiy and Druzhinin. According to the speedometer readings, during the period from 26 March to 20 April the motor vehicle of Comrade Berezovskiy traveled 3,410 kilometers. But on the route records the run was shown to be 4,852 kilometers. This worker was paid wages and allocated fuel for 4,852 kilometers. Thus, during just 1 month

alone, the increase in the volume of work carried out amounted to 1,442 kilometers or 40 percent. And during this same month, Comrade Druzhinin added 1,262 kilometers to his run.

"They are our kind of lads," approved Byakov. "They must also drink Vitamin C. And what is their situation with regard to fuel? Rodionych, I have not been trained to slight myself. I have a tractor and it pertpetually rattles for days."

"Then I would recommend the Khandalinskiy Sovkhoz for you" advised Pipol'fenov, "Here there is an abundant amount of fuel. During the first four months of this year alone, the truck drivers used 19,048 liters of gasoline, the retail value of which was 5,610 rubles. But the sovkhoz management proved itself to be both humane and tactful: it withheld only 164 rubles from the drivers."

"Yes, we 'fruits' would go through thick and thin for such management" declared the patient, evidencing his readiness, "Are the bookkeepers on these our farms our kind of 'pear people' [those who do nothing]?"

"Yes, both the bookkeepers and the representatives of other professions" replied Ivan Rodionovich, "At these farms, no limit is placed upon allocation of spare parts and materials from a warehouse for repair or technical maintenance work. And the engineering service does not trouble itself with preparing estimates for the capital and current repair of tractors, combines, motor vehicles or other items of agricultural equipment. There is no control over growth in the above-normal supplies of spare parts and repair materials. At the Orongoyskiyh Sovkhoz, the supplies amount to 78,000 rubles worth against a norm of 13,000 rubles. At the same time, there are 13,300 rubles worth of unused spare parts at a warehouse. On the other hand, another warehouse is missing two sheepskin coats and 50 kilograms of granulated sugar."

"Well, it bodes ill for the storekeeper," Byakov hypothesized.

"As yet, everything is normal. The shortage has still not been attributed to a materially responsible individual and the sheepskin coats and sugar are still listed as being in storage."

"Let them be listed," agreed the sick fruit, "Sheepskin coats are mere trifles."

"Certainly, a trifle" agreed the medical orderly. "At the Barlyk Sovkhoz in Barun-Khemchikskiy Rayon (in the Tuva ASSR), on the night of 10-11 March, 49,000 rubles together with a safe and cash transaction documents were stolen. And indeed the sovkhoz director and the chief bookkeeper had been warned that the facility in which these valuables were housed required a special alarm system. But they did not wish to burden themselves with additional problems and the result--the safe disappeared. At the Sovkhoz imeni XXII Partsyezda KPAA, the material damage caused by stupid bungling and theft reached 118,000 rubles. For individual agricultural workers, the indebtedness reached 20,000 rubles. And there are still no executive records for these workers. Moreover, the data in the sovkhoz's annual report on surplus construction materials differs from objective reality by 119,000 rubles."

"This means that they count according to the principle "forty and forty" conjectured the quick-witted Byakov, "On such a farm I would feel as [carefree as] though I was still in my mother's womb. With my illness, only this sovkhoz will do."

"Do not draw any hasty or rash conclusions, Viktor Pavlovich" stated Ivan Rodionovich, "For there are just as many masters of creative accounting in the Buryat ASSR as there are in the Tuva ASSR. At least in the reports for 1983, which were written by many sovkhozes, from 250 to 700 corrections had to be entered."

By the time Byakov departed the public health center it had become quite light outside. The sky was cornfield blue in color. In addition, it was as quiet as inside a bathysphere lowered to a depth of 800 meters.

Byakov flew into his truck's cab in the manner of a falcon and, by way of carrying out the prescription of the medical orderly, drove his tractor towards the kolkhoz library.

"Do you have any books?" he directly asked the librarian Irochka who sat in front of a space heater wrapped up in a downy shawl.

"What type of literature do you wish? Artistic, political, scientific or special? inquired the stiff with cold librarian.

"The musketeers--what type of literature is this?" a newly-made bibliophile asked, entering the discussion.

"The novel 'Three Musketeers' by Aleksandr Dumas is an artistic work. Unfortunately however, this book is out. Perhaps there is another book you would like?"

Viktor Pavlovich switched on his brain power, racked his convolutes and scanned the bottom of his memory, where scraps of school impressions were stored, until he found what he was looking for.

"Let me have the 'Drunkard of the Caucasus', gorgeous. The classic novel by Lev Nikolayevich Tolstoy", he requested.

Once again Irochka disappointed him, "Unfortunately, all copies of Tolstoy's story 'The Prisoner of the Caucasus" are out. The students are presently studying this work in school.

"Then let me have something that the students are not studying!" demanded Byakov and thereafter he was given a book entitled "Natural History" by Pliny the Elder.

"Here is your book" stated Irochka, as she delivered the volume to the reader. "It was written 18 centuries ago by a well known Roman scientist and writer. It contains many interesting facts concerning agriculture."

Viktor Pavlovich dined at home and thereafter lay down on the divan together with Pliny the Elder.

"With regard to the shade cast by Greek walnut trees, pines, firs and spruce trees, it is beyond doubt the shade is toxic to all who come into contact with it," wrote Pliny.

"Amazing!" thought Byakov, "Even the shade is toxic."

"Plowing on hills is carried out only crosswise to the slope" wrote Pliny, showing off his abundant agrotechnical knowledge, "with the plowshare being turned upwards and then downwards.

"We've already heard this." Byakov did not yield to the writer.

"To sow turnips it is recommended to strip down completely and pray for one's harvest and for that of a neighbor," advised Pliny the Elder.

"Do tell!" stated Byakov, somewhat moved.

"There can be no doubt," Pliny ejaculated, "that farming is based upon labor and not upon expenditures and thus our ancestors insisted that a thrifty eye was of great importance for farming."

"However, Pliny the Elder is not a yardstick for us," reasoned Byakov in the plural [royal] fashion.

Corrective Measures To Be Employed

Moscow SELSKOYE KHOZYAYSTVO ROSSII in Russian No 4, Apr 85 p ?

[Article: "Fruit Disease", under the rubric: "After the Critique"]

[Text] The topical satire published under the title "Fruit Disease" in the November issue of the journal for 1984 contained a discussion on the theft of socialist property and on unsatisfactory accounting procedures at a number of sovkhozes in the Tuva and Buryat ASSR's.

The Editorial Board has been informed by the Minister of Agriculture for the Tuva ASSR I. Lavrinenko that the criticism is adjudged to be correct. For having tolerated gross violations in the carrying out of cash transactions, the chief bookkeeper of the Barlyk Sovkhoz in Barun-Khemchikskiy Rayon A. Orzhak and cashier Z. Khomushko were relieved of their posts. The case concerning material damage amounting to 49,000 rubles has been turned over to the investigative organs. At the Sovkhoz imeni 23rd Syezda KPSS, material damage in the amount of 118,000 rubles is being recovered from the guilty parties in accordance with writs of execution. Administrative fines have been levied against the sovkhoz directors.

In the interest of eliminating the shortcomings discussed in the topical satire, the Board of the MSKh [Ministry of Agriculture] for the Tuva ASSR adopted the decree entitled "Measures for Ensuring the Reliability of Accounting Data and Improving Accounting Procedures at Sovkhozes" and also the decree

entitled "The Status of accounting and Control Over the Use of Material and Monetary resources at Sovkhozes Throughout the Republic." In conformity with these measures, a program of measures was adopted directed towards improving accounting and reporting procedures.

In a letter signed by the Deputy Minister of Agriculture for the Buryat ASSR I. Perfilyev, it was reported that the topical satire "Fruit Disease" was discussed during a republic conference for chief bookkeepers of rayon agricultural administrations. Administrative fines were imposed upon the directors and chief bookkeepers of the sovkhozes Baykalo-Kudarinskiy, Oymurskiy and Khandalinskiy in Kabanskiy Rayon and also upon the chief and main bookkeeper of the agricultural administration for this rayon for having tolerated serious derelictions in the conduct of their work. At the present time, order has been restored to the bookkeeping procedures and reporting being employed on these farms.

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CSO: 1824/370

POST HARVEST CROP PROCESSING

FOLLOW-UP COMMENTARIES ON FRUIT, VEGETABLE DISTRIBUTION

Recommendations For Improving Work

Moscow ZAKUPKI SEL'SKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 10, Oct 84 p 25

[Article: "Preventing Losses in Potatoes and Vegetables"]

[Text] In Issue No 1 of the journal for 1984, an article by V. Kuznetsov was published under the title "Preventing Losses in Potatoes and Vegetables." In this article, the author discussed the shortcomings noted in the procurement, storage and sale of potatoes, fruit and vegetables in Kostroma Oblast.

The Editorial Board has been informed by the chief state inspector for procurements and the quality of agricultural products for Kostroma Oblast V.A. Shevtsov that the article was discussed during an expanded meeting of the State Procurement Inspection for Kostroma Oblast, with representatives of procurement organizations and farm leaders participating in the discussion.

The participants at the meeting made specific recommendations for improving the work. Thus, with regard to the Plodoovoshchkhoz [fruit and vegetable economy] possible to increase considerably the volumes of products being procured by means of the"field-store" method and it is also improving the quality of the products. A dispatcher service has been created for ensuring that the stores are continuously supplied with fruit and vegetable products and potatoes.

The construction of three vegetable storehouses for 2,900 tons has been started. The placing in operation of these facilities will eliminate the shortage of storage facilities required for the extended storage of vegetables.

In 1984, the sovkhozes of the Kostromaplodoovoshchkhoz Association will expand considerably the assortment of vegetables in the interests of satisfying more completely the population's requirements.

The construction of a refrigerator for 1,000 tons will commence in 1985 at the Volzhskiy Sovkhoz and this will ease considerably the problem concerned with the preservation and sale of products grown.

In 1984, for the purpose of achieving improvements in the potato and fruit and vegetable trade, gorplodoovoshchtorg plans to place two packaging lines in operation at storehouses.

A decision handed down by the executive committee of the municipal soviet of working people's deputies has called for the stores to be equipped with mechanized equipment for the carrying out of loading and unloading operations.

This year the plans call for 1,200 square meters of a storage field to be covered with concrete slabs. A new potato grinding department with a capability for handling 400 tons of potatoes daily is now operating at full capability.

Each month the state inspection carries out checks on the preservation of potatoes and vegetables laid away for extended storage at organizations in Kostroma and throughout the oblast. All shortcomings noted are being corrected.

Measures for Improving Production, Procurement Operations

Moscow ZAKUPKI SEL'SKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 10, Oct 84 p 30

[Article: "Preventing Losses in Potatoes and Vegetables"]

[Text] In Issue No 9 of the journal for 1983, an article by the deputy chief of the State Inspection for Procurements of Potatoes, Fruit and Vegetables of the RSFSR Ministry of Procurements I. Nishchenko was published under the title "Preventing Losses in Potatoes and Vegetables." In this article, the author singled out shortcomings in the production and purchases of vegetables in a number of oblasts throughout the country.

Workers attached to the Yaroslavl State Procurement Inspection consider the criticism to be correct. The question concerning violations of state discipline in the purchasing of agricultural products was examined during a presidium of the Yaroslavl Oblast council of the agroindustrial association. Penalties were imposed upon a number of farms for failing to carry out their vegetable deliveries.

The State Procurement Inspection is presently carrying out measures aimed at ensuring that all farms carry out their contractual obligations.

The chief state inspector for purchases and the quality of agricultural products for Tambov Oblast, K. Markov, has notified the Editorial board that the shortcomings in the raising and sale of vegetables at the Tsna Sovkhoz were set forth quite fairly in the article. For mistakes tolerated in production management, the director of the Tsna Sovkhoz, Khmyrov, was removed from his post.

Practical measures have been carried out at the mentioned farm aimed at improving the production and procurements of vegetable products.

The chief state inspector for purchases and the quality of agricultural products for Novosibirsk Oblast, A. Pichikov, writes that receiving-delivery points for the processing, sorting and preparation of vegetables for delivery have been built this year on farms of Novosibirskplodoovoshchkhoz for the purpose of correcting the shortcomings mentioned in the article. The acceptance of products directly in the production areas has been increased.

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POST HARVEST CROP PROCESSING

NEW STATE STANDARD FOR CATEGORIZING WHEAT

PM151132 Moscow SELSKAYA ZHIZN in Russian 7 Jul 85 p 1

[Unattributed report: "At the USSR State Committee for Standards"]

[Text] To increase the economic interest of kolkhozes and sovkhozes in the production and sale to the state of strong and duraum wheat and also to regularize procurements and increase the responsibility of enterprises of the system of the USSR Ministry of Procurements for the safekeeping of procured high-quality wheat, the USSR State Committee for Standards has approved a new state standard for wheat and amended existing methods for determining the condition of grain.

The new state standard "Wheat Technical Conditions" comes into force on 1 June 1986. It establishes the following commodity classification of procured wheat: soft wheat is divided according to quality into first-, second-, third-, and fourth-class, and durum wheat into first-, second-, and third-class, and unclassified.

The most important indicator for allocating soft wheat to a particular class is gluten content and quality. Wheat with a gluten content of more than 32 percent comes into the first class, a gluten content of between 28 and 32 percent into the second class, a gluten content of between 23 and 28 percent into the third class, and the remainder into the fourth class. Wheat classes one and two must have a vitreousness of at least 60 percent and gluten quality no lower than first-group quality and must contain no more than 2 percent impurities which are difficult to separate and not more than 1 percent germinated grains. The condition of the grain must be now lower than the base norm.

It is envisaged allocating wheat grain of the first degree of decolorization to class one or two if it meets the prescribed requirements for all other indicators. According to the State All-Union Standard, the first degree of decolorization is characterized by loss of luster and decolorization of the grain from the back.

In connection with the fact that the quality of the grain in the second and third degrees of decolorization decreases, this grain is allocated only to classes three and four.

The State All-Union Standard establishes that wheat color for the allocation to appropriate types and subtypes and also degrees of decolorization are determined by working samples for a given region and year of harvest approved by the state grain inspector of the oblast (kray, republic) state grain inspectorate of the USSR Procurements Ministry.

The gluten content requirements which currently exist for durum wheat are preserved: for class one more than 28 percent, for class two between 25 and 28 percent, and for class three between 22 and 25 percent. The gluten content is not laid down for unclassified wheat.

No more than 10 percent of smut grains (maranye, sineguzochnye) [translation unknown] are permitted in a batch of soft and durum wheat.

Requirements have also been established for the quality of wheat supplied for feed purposes for the output of mixed feed.

In connection with the approval of the new State All-Union Standard "Wheat. Technical Conditions," the USSR Ministry of Procurements and the USSR Ministry of Agriculture are instructed to elaborate and implement in 1985 measures to prepare for the introduction of the standard, and there special attention must be paid to detailing the procedure for preparing and approving standard samples to determine the degree of decolorization of wheat grain.

On 1 July 1985 the change to the No 1 State All-Union Standard 10840-64 "Grain. Methods of Determining Condition," approved by the State Committee for Standards, comes into force. In connection with the fact that condition is improved during the drying of moist grain, it is established that: "If the moisture content of wheat exceeds the base norm, for every percent of moisture content above the base norm the end result is increased by 5 grams per liter for types one, two, and three (spring) and by 3 grams per liter for type four (winter) wheat."

The introduction of the change will make it possible to correctly establish the condition of grain on its reception.

CSO: 1824/477

LIVESTOCK FEED PROCUREMENT

LATVIAN CP CC TAKES MEASURES TO INCREASE QUALITY FEED SUPPLY

Riga SOVETSKAYA LATVIYA in Russian 5 Jun 85 p 1

[Article: "At the Central Committee of the Communist Party of Latvia"]

[Excerpt] At its regular session the Buro of the Latvian Communist Party's Central Committee examined urgent measures to increase the production of coarse and succulent feed in 1985. Placing special attention upon providing livestock with feed for the 1985-1986 wintering, the successful completion of the 11th Five-Year Plan and preparations for the 27th CPSU Congress, the Latvian Communist Party Central Committee has concentrated the attention of party raykoms, ministries, departments, soviet and economic organs upon the need to further intensify feed production in order to create guaranteed supplies of high quality coarse and succulent feeds at each farm.

In the decree the CC Buro obligated party raykoms, soviet and agricultural organs, ministries and departments in the republic to raise the level of organizational and mass political work at kolkhozes and sovkhozes so that during the feed preparation season all technical and labor resources will be mobilized and so that each kolkhoz and sovkhoz complete the first cutting of hay within 20 working days from the beginning of haying. It is necessary to organize the extensive and universal introduction of progressive technology for producing, preparing and storing feed, increase the demands made upon kolkhoz and sovkhoz managers and specialists with regard organizing the timely beginning of feed preparation work, reducing hay cutting time, improving feed quality, perfecting the instruction of leaders of comprehensive technological detachments, brigades and links in progressive methods for work organization and the use of progressive technology for feed preparation. Republic Goskomselkhoztekhnika must reduce the time for the delivery of components, units and spare parts to farms and improve the work of the dispatch service. It is also required to convert the maximum number of feed preparation brigades to collective contracts, conduct a decisive battle against violations of labor discipline, more fully using the Law on Labor Collectives and the Ukase of the USSR Supreme Soviet "On Strengthening the Struggle Against Drunkenness." Ministries, departments, party raykoms and rayispolkoms are obligated to most rapidly assure the fulfillment of plans and targets for the construction of new and the reconstruction of existing feed shops and storage facilities.

The Latvian Republic Trade Union Council, the Central Committee of the Latvian Komsomol, the ministries of agriculture, the fruit and vegetable industry, Goskomselkhoztekhnika, party raykoms and rayispolkoms are entrusted with organizing effective socialist competition, the daily on the spot,summing up of results, the widespread visibility of labor contests among participants in feed preparation and the awarding of victors directly on the field or at work site.

It is required to activate patronage assistance to the countryside, take additional measures to supply hot food, improve the organization of trade and cultural-personal services directly to the work sites of rural dwellers and workers engaged in feed preparation.

The Latvian Communist Party Central Committee Buro has approved the appeal of workers at the Rezeknenskiy RAPO to all workers in the Latvian SSR agro-industrial complex to successfully complete the haying season, increase the production of all types of feed and improve its quality in 1985. The Buro has obligated gorkoms and raykoms of the Latvian CP, gorispolkoms and rayispolkoms, ministries, departments, party, trade union and Komsomol organizations at kolkhozes and sovkhozes and enterprises and organizations providing assistance to them to support the initiative of the Rezeknenskiy RAPO.

There is a need to shift the center of organizational and political work directly to labor collectives, brigades, and links and to enhance the mobilizing role of primary party organizations in the use of reserves and potentials for increasing feed production and improve its quality.

The Latvian CP Central Committee Buro approved the suggestion of the Latvian Komsomol Central Committee to conduct on 29 June of this year, on the eve of Soviet Youth Day, a Komsomol Youth Saturday dedicated to the forthcoming 27th CPSU Congress and the 12th All Union Festival of Youth and Students. It noted the need to concentrate efforts this day's efforts on specific help to rural workers in preparing feed and repairing feed production facilities.

The editorial boards of republic and rayon newspapers, the Latvian SSR State Committee for Television and Radio Broadcasting are to provide for widespread propaganda of the experience of farms, brigades and links using progressive technology for the production, processing and storage of feed and progressive forms of labor organization and stimulation.

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LIVESTOCK FEED PROCUREMENT

UZBEK FEED PROCUREMENT DEFICIENCIES SCORED

Tashkent PRAVDA VOSTOKA in Russian 28 Jun 85 p 2

[Article: "We Will Speed up the Procurement of Fodder"]

[Excerpts] Report on Operations

On the Course of the Hay Mowing and Procurement of Fodder in the Republic's Oblasts as of 27 June 1985 (in percent of the plan)

	(1)	(2)	(3)	(4)	(5)	(6)
Karakalpak ASSR	5	11	14	10	9	2.0
Andizhan	102	32	30	26	50	4.5
Bukhara	53	22	23	40	17	18.1
Dzhizak	89	37	52	47	17	27.6
Kashkadar'ya	92*	35	24	125	15	5.4
Navoi	87	20	21	58	17	14.1
Namangan	69	39	33	64	30	11.8
Samarkand	83	47	41	108	14	10.0
Surkhandar'ya	81	45	26	138	21	20.5
Syrdar'ya	83	51	59	101	19	4.7
Tashkent	83	43	42	127	6	24.9
Fergana	85	30	22	52	22	8.5
Khorezm	64	19	30	25	17	15.5
Uzbekistan	72	33	31	77	17	12.3

Note: *) corrected

The farms of Dzhizak, Kashkadar'ya, Surkhandar'ya and Tashkent oblasts have begun the third cutting of alfalfa.

Key:
1. Second mowing of alfalfa
2. Total course fodder
3. Hay
4. Haylage
5. Straw and other coarse fodder
6. Artificially dried vitamin herbal meal

At its meeting on 26 June, the Uzbek CP Central Committee Bureau examined the question of increasing the rate of procurement of fodder on the farms of Tashkent, Navoi and Kashdarar'ya oblasts. Participating in the discussion were the secretaries of the party obkoms, the chairmen of the oblast agroindustrial associations, the first secretaries of a number of party raykoms, and the managers of kolkhozes and sovkhozes that are lagging behind in the procurement of fodder and in livestock production.

It was noted that the level of organization is inadequate in the procurement of coarse fodder in the indicated oblasts, rayons and farms. The plan for the procurement of coarse fodder is 18 percent fulfilled in Navoi Oblast, 32 percent in Kashkadar'ya Oblast, and 39 percent in Tashkent Oblast. And in the accumulation of fodder, the kolkhozes and sovkhozes of Kashkadar'ya and Tashkent oblasts are significantly behind last year's level.

At many farms, there is mismanagement in the utilization of fodder resources, the best times for the harvest of grasses are being missed and the alfalfa is remaining in the fields too long and is entering the phase of mass blooming. The managers of a number of farms as well as the specialists of agroindustrial associations and fodder production workers have not become aware of the fact that a delay in the harvesting of alfalfa leads to significant fodder losses. Almost everywhere, the mowing of alfalfa is being delayed 30 to 35 days, which can lead to a reduction in the number of mowings. At Sovkhoz imeni XXIV partsyezda in Ul'yanovskiy Rayon, Turkmenistan Sovkhoz in Nishanskiy Rayon, and Leningrad Sovkhoz in Kasanskiy Rayon, the second cutting of alfalfa has already lasted 20 days and is not finished. Because of the duration of the mowing period, the farms of Kashkadar'ya Oblast are losing practically one harvest during the time of the removal of two cuttings, causing tremendous losses to the fodder base. The second cutting of alfalfa has not been completed on the farms of Chustskiy, Nishanskiy, Romitanskiy, Galabinskiy and Frunsenskiy rayons.

The control of party organizations and specialists of rayon agroindustrial associations over the course of hay mowing and the quality of the harvest has been weakened. At many farms, they are using technicallay defective mowers, the alfalfa is being cut high, and areas are being skipped on the edges of the fields. The ministries of agriculture and the fruit and vegetable industry as well as Glavsredazirsovkhozstroy and Goskomsel'khoztekhnika are not taking specific and effective measures to apply hay-harvesting equipment more effectively. Its productivity is low and some of the machines are idle. The incompetent organization of the work is leading to fodder losses, to a reduction in the alflalfa yield, and to a delay in its maturation.

The allowed shortcomings led to the fact that the alfalfa yield from the first mowing amounted to only 36 quintals per hectare in Kashkadar'ya Oblast, 41 quintals in Navoi Oblast, and 43 quintals in Tashkent Oblast, which is less than last year's indicator by 7, 11 and 6 quintals per hectare, respectively. On the farms of Frunzenskiy, Chustskiy, Nishanskiy and several other rayons, the alfalfa yield amounted to only 34 to 36 quintals.

There are violations in the agricultural technology for cultivating alfalfa. On the farms of Kommunisticheskiy, Bekabadskiy, Galabinskiy, Usman-Yusupovskiy, Kasanskiy, Nishanskiy, and several other rayons, the top dressing and watering of alfalfa is not begun until 10 to 12 days after it is mowed.

There are cases of delays in the watering of corn and root forage crops, and over a significant area they are behind in their development.

The lag in the procurement of fodder is explained primarily by the fact that party obkoms and raykoms and the party organizations of the kolkhozes and sovkhozes of Kashkadar'ya, Navoi and Tashkent oblasts did not draw the proper conclusions from the repeated directives of the CPSU Central Committee and the Uzbek CP Central Committee, are putting up with cases of an irresponsible attitude toward fodder production, and are not holding responsible those persons who grossly violate the technology for the cultivation, harvest and procurement of fodder. At the farms of these oblasts, they are also not concerning themselves with the timely procurement of straw.

In Kashkadar'ya, Navoi and Tashkent oblasts, cereal crops have been harvested from 23 to 38 percent of the sown area and only 3 to 13 percent of the planned straw has been procured. The filling of the seed stock and the delivery of grain to the state have not been organized. Kashkadar'ya Oblast has procured only 4 percent of the grain, Tashkent Oblast 20 percent, and the delivery of grain has not yet begun in Navoi Oblast.

The storage of procured fodder is not efficiently organized. Thus, at Uzbekstan Kolkhoz and Kolkhoz imeni 22nd Party Congress as welll as Zarafshan Sovkhoz in Khatyrchinskiy Rayon and on most of the farms of Kommunisticheskiy, Akkurganskiy and Galabinskiy rayons, the hay is allowed to become too dry and the quality of its stacking and storage is not good, leading to a loss of the nutritive qualities of the fodder. Most of the kolkhozes and sovkhozes are not applying progessive methods of hay procurement with active ventilation.

At individual farms of Kashkadar'ya Oblast, the technology for laying down haylage is being grossly violated. Thus, at Sovetskaya Rossiya Sovkhoz in Usman-Yusupovskiy Rayon, all of the haylage was spoiled by heating up spontaneously. As a result of gross violations in the technology of the harvest and storage, a significant portion ofthe fodder base has been placed in the lower categories. In Kashkadar'ya Oblast, only 52 percent of the fodder has been placed in the first category and this indicator is significantly lower in individual rayons.

Zonal agricultural chemistry laboratories are not maintaining timely control over the quality of the fodder being procured, they are delaying the release of the results of its analysis, and many farms have no data on the quality of grasses. In Navoi Oblast, there is practically no determination of the quality of fodder. There is thus no consideration being given to one of the main factors in raising the incentive of the collectives of the fodder procurement brigades to supply farms with full-value fodder.

At many kolkhozes and sovkhozes, there are few fodder-procurement groups and they are small, yielding little and working ineffficiently and at a slow pace.

In Frunzenskiy Rayon, for example, only two fodder-procurement groups have been established. Not everywhere have they begun the repair and preparation of silage and corn-harvesting equipment. On the farms of Tashkent Oblast, 250 combines are not ready for work and 118 combines are not ready in Kashkadar'ya Oblast, which amounts to 20-25 percent of the machines on hand.

Party, soviet and economic authorities as well as managers of kolkhozes and sovkhozes are not being persistent in fully mobilizing human resources for the procurement of fodder, and they are doing a poor job of explaining to kolkhoz and sovkhoz workers the importance of the timely and rapid harvesting of sown and natural grasses.

The Uzbek CP Central Committee Bureau pointed out to the Tashkent, Navoi and Kashkadar'ya party obkoms and oblispolkoms serious shortcomings and omissions in managing fodder production, and it demanded that they adopt immediate measures to eliminate backwardness. The party obkoms, the ministries and departments of the republic's agroindustrial complex, the Council of Ministers of Karakalpakskaya ASSR, and the oblispolkoms have been entrusted with raising the responsibility of key personnel for fodder production and with developing organizational and party-political work so that each farm is provided with sufficient succulent and coarse fodder.

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LIVESTOCK FEED PROCUREMENT

KAZAKH FEED PROCUREMENT PROGRESS REVIEWED

PM151014 Moscow SELSKAYA ZHIZN in Russian 12 Jul 85 p 1

[Zootechnician M. Glinka AGRICULTURAL REVIEW: "Proceeding from the Need of Livestock Units"]

[Excerpts] At the end of April working people of Alma-Ata Oblast villages advanced an initiative to not only procure the necessary quantity of coarse, succulent, and concentrated feed but also create a reserve stock.

How, then, are kazakh farms fulfilling their high pledges? This is indicated by the following data (as of 8 July, as a percentage of the plan):

Oblast	First Cutting	Procured	
		Hay	Haylage
Aktyubinsk	32	17	16
Alma-Ata	36	27	60
East Kazakhstan	25	17	40
Guryev	14	10	1
Dzhambul	40	34	107
Dzhezkazgan	30	15	14
Karaganda	61	32	36
Kzyl-Orda	22	18	38
Kokchetav	51	36	7
Kustanay	65	50	5
Mangyshlak	24	23	--
Pavlodar	42	31	7
North Kazakhstan	39	41	1
Semipalatinsk	41	29	6
Taldy-Kurgan	32	22	70
Turgav	64	35	2
Uralsk	42	23	10
Tselinograd	64	39	2
Chimkent	59	45	130
Kazakh SSR as a whole	43	30	37

Grasses this year have turned out stunted, and in order to lay in store the necessary quantity of hay and haylage it is necessary to cut larger areas than usual. This work has been organized better than elsewhere in Chimkent Oblast, which has significantly overfulfilled the plan for laying in haylage and procured almost half the planned quantity of hay, and also in Karaganda, Kustanay, Turgay and Tselinograd oblasts.

CSO: 1824/476

LIVESTOCK FEED PROCUREMENT

PARTY CONCERN FOR KIRGHIZ FEED PRODUCTION INCREASE

Frunze SOVETSKAYA KIRGIZIYA in Russian 12 May 85 pp 1-2

[Article: "The Maximum Accumulation of Feeds -- An Urgent Task"]

> [Excerpts] The Central Committee of the Kirghiz Communist Party and the Kirghiz SSR Council of Ministers discussed the question: "On Measures to Increase the Production of Coarse and Succulent Feeds at Kolkhozes and Sovkhozes in 1985."

The decree states that based upon an analysis of agroclimactic conditions and the production potential created in the countryside, the Central Committee of the Kirghiz Communist Party and the Kirghiz SSR Council of Ministers reckon that the current, final year in the five-year plan can become pivotal in reliably strengthening the feed base for animal raising, a sector which is solving the basic tasks of the Food Program and further improving public welfare. The decisions of the March and April (1985) CPSU Central Committee Plenum, and the statements and recommendations of CPSU Central Committee General Secretary, comrade M. S. Gorbachev demand the concentration of efforts on measures to successfully implement these tasks.

The difficult lessons of this winter, when insufficient feed, intensified by severe weather conditions reduced animal productivity and increased losses, are once again convincing evidence that general increases in forage supplies are of primary importance, require the active assistance of rural workers, communists and all working people and that the center of organizational and mass political work should be shifted to their solution.

The Kirghiz Communist Party Central Committee and the Kirghiz SSR Council of Ministers note that this year, when the moisture content of all agricultural land has accumulated to the limit of complete field saturation, any measures directed towards increasing the yields from crops, especially feed crops, will give the best results. The situation is made more favorable by the complete replacement of industrial sugar beet plantings by corn, the partial reduction of cotton plantings, and better possibilities for improvements in crop structure.

Given the widespread implementation of a complex of effective organizational and technological measures, these conditions will make it possible this year, as never before, to confidently pose and solve the task of the most complete accumulation of feeds and thus lay the basis for intensive animal raising and for breaking the records in socialist competition among the country's animal farmers.

The Kirghiz Communist Party Central Committee and the Kirghiz SSR Council of Ministers consider that one of the main tasks of party, soviet, economic and public organizations and all rural workers in the final year of the five-year plan is the maximum accumulation of forage supplies for animal raising.

Party obkoms and raykoms, oblast and rayon executive committees, the ministries of agriculture, the fruit and vegetable industry, the food industry and Goskomsel'khoztekhnika are entrusted with the implementation of a complex of organizational, mass political, technical and technological measures for the unconditional performance of tasks in the general accumulation of feeds. Basic attention here should be given to the extensive organization of agitation-explanatory work among rural and all workers so that each rural dweller has a feeling of personal participation in solving these tasks and, with a deep understanding, is actively involved in feed preparation; so that each farm has a comprehensive program for feed production, has extensively discussed it at all labor collectives and rural meetings and so that contract collectives of feed preparation workers will be quickly formed. Not a single feed field should remain outside the contract process. There should a general and extensive introduction of the most high yielding high protein feed crops and additives, a critical, creative approach to the use of a number of obsolescent, traditional methods of feed preparation, to the present crop structure and to considerable expansions in the area planted to feed root crops, increasing the area devoted to them this year to 11,700 hectares.

Measures are to be taken to assure the maximum density of feed crop planting. Large shares of corn for all uses are to be planted jointly with feed roots, there will be extensive introduction of corn-sorghum, corn-soybean, corn-sunflower and other silage crops. It is essential to make careful preparation for the maximum expansion of post-harvest sowing. Not a single hectare of early crops, harvested in July or the beginning of August should be left free until autumn. Pulse and grass crops, together with corn-soybean mixtures, should be widely used as post-harvest crops. Fields intended for the planting of row crops in 1986 are, as a rule, to be planted with interrow crops, rape and perko, so that a harvest will be obtained from this year. A complex of organizational-technical measures should be taken to improve care for perennial grasses planted in previous years. There is to be intensified watering and top dressing and well organized hay cuttings to markedly reduce the period between cuttings. In Osh Oblast there will be at least 5 cuttings, in the Chuyskaya Valley at least 4, in Talasskaya Valley -- 3, and in Issyk-Kyland Naryn oblasts -- 2 each. This requires the widespread use of all means and methods to markedly improve the quality of all feeds, increase the preparation of hay through active ventilation and shaded drying, the storage of mixed and ordinary silage with preservatives, the use of ammonia on straw and other progressive methods.

The implementation of these and other measures will assure the following yields from each hectare of sown feed lands: in Naryn and Issyk-Kul Oblasts up to 45-50 quintals of feed units, in regions of the Chuyskaya and Talasskaya Valleys -- up to 60-80, in Osh Oblast up to 80-100 quintals.

Special attention is to be given to the continuous organization of the "green conveyor." This requires planting alfalfa and grass mixtures on all free land near commercial dairy farms and determining the nearest perennial grass fields on which to organize the scheduled cutting of green chop and to give intensive care.

Simultaneously, there are to be improvements in the ability to cut every hectare of natural hayfields, where good hay stands are expected this year, to assure the harvest of club rush [Scirpus], preserving the entofauna, and completely harvesting straw and other post-harvest residues.

All equipment is to be kept in a high degree of readiness and reliability. This especially applies to forage harvesters, bailers, vitamin-grass meal units and pelletizers and all transport equipment. There are to be intensified measures to improve natural forage lands, to make root zone and surface improvements in pastures and to irrigate and fertilize them.

The ministries of agriculture and the fruit and vegetable industry, oblast and rayon agro-industrial associations, rural and village soviets are obligated to give thorough assistance to the population in procuring feed for individually owned livestock. Alfalfa seed is to be allocated for these purposes and help given in the planting of household plots, especially in mountain and piedmont regions. Feed roots, squash and other feed crops are to be planted on each running meter of field edge, road shoulder, and along irrigation ditches in valleys. All nonarable land between households is to be planted to coarse feeds. In accordance with existing statutes, the harvest is to be entered into accounts [oprikhodovat'] and half of it given to the population free of charge. All able bodied rural dwellers are to be mobilized to harvest and prepare feeds and and given specific targets. The leadership over this work is the first duty of deputies of local soviets.

Within a week, the republic Ministry of Agriculture and the Ministry of the Fruit and Vegetable Industry should present the republic Council of Ministers agreed upon suggestions for the establishment, in the republic, of a network of specialized farms for raising seeds for feed roots, beans, sorghum, Sudan grass, perko, rape and other promising feed crops.

In order to convert to a planned basis the organization of the use of preservatives, ammonia and other highly effective chemicals in animal husbandry and feed production and to considerably expand and coordinate the work being done, it has been decided to create, in the republic production-scientific association "Kirgizsel'khozkhimiya", a specialized administration (from 4 to 6 people) using staff from the republic Ministry of Agriculture and its units.

The Ministry of Agriculture (Comrade Savitakhunov), the Ministry of the Fruit and Vegetable Industry (Comrade Tynaliyev) and Goskomsel'khoztekhnika (Comrade Boyko) are to take the measures necessary to import additional MZhA-6 automatic machines for transporting liquid ammonia, ZBA-3.2 --817 tanks for anhydrous ammonia and AShA-2 wide sweep units for the application of ammonia.

The Scientific Research Institutes for Pastures and Feeds, and for Agriculture and the Kirghiz SSR Academy of Sciences' Biology Institute are obligated to assure the widespread informing of kolkhozes and sovkhozes about the newest achievements in feed production through the organization of practical seminars and regular articles in the press and other mass media. These should contain recommendations about questions of strengthening the feed base, improving forage quality and obtaining the best results from feed production at subordinate farms.

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LIVESTOCK FEED PROCUREMENT

INTENSIVE DEVELOPMENT OF LIVESTOCK FEED BASE ADVANCED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 5, May 85 pp 95-98

[Article by N. Ivanov, subdepartment deputy chief, USSR Gosplan: "Ways to Develop and Improve the Effectiveness of Feed Production"]

[Text] The decisive condition for increasing livestock production output is the rapid and intensive development of the feed base for livestock raising. In recent years positive tendencies have appeared in feed production--there has been an increase in feed procurement and in the proportion of coarse, succulent and summer green feeds (up to 61 percent). Average annual procurement of coarse and succulent feeds in the course of 4 years of the current five-year plan increased by 10.3 percent. There was a noticeable improvement in their quality. The share of first and second class hay increased from 52 to 65 percent, of haylage--from 43 to 59 percent, of silage--from 52 to 66 percent and of grass meal--from 28 to 54 percent. The area in perennial grasses (for seed) increased by a factor of 1.5, including the area in seed plants of alfalfa and clover--by almost double; production of grass seed increased by a factor of 1.7, including of leguminous grass seed--by a factor of 2.2. There has been a noticeable increase in deliveries of seed into the general national fund. During these years the kolkhozes and sovkhozes of the Kirghiz SSR alone shipped 12,300 tons of alfalfa seed to regions where alfalfa does not go to seed. The total area in leguminous grasses has increased to 15.4 million hectares in the country as a whole.

However, it should be noted that the feed supply for livestock raising still has not reached the desired quota. During the last 10 years the expenditure of feed per standard head increased from 25.1 quintals of feed units to just 26.1. A substantial shortage in rations for animals involves the small proportion of summer green feeds. In recent years summer green feeds, and especially pasture green feeds, have decreased within the structure of feeds in the kolkhozes and sovkhozes of the RSFSR, the Georgian SSR, the Azerbaijan SSR, the Latvian SSR, the Kirghiz SSR, the Armenian SSR and the Estonian SSR although these are the most inexpensive and protein-rich feeds.

The feed rations of animals continue to be unbalanced in terms of protein. Each year there is a shortage of 3-3.5 million tons of it. This results in the overconsumption of feed and in the underproduction of livestock products.

The production of coarse, succulent and summer green feeds is being hindered by a number of factors. An analysis shows that not all specialists of kolkhozes, sovkhozes and production associations deal sufficiently with questions related to feed production; the productivity of feed crops is still low and is increasing slowly. In 1976-1980 on the average per hectare it comprised 19.9 quintals of feed units, and in 1981-1984--22; the productivity of grasses earmarked for hay increased from 6 to 7 quintals on natural haylands. Small harvests of feed crops are produced by the kolkhozes and sovkhozes of a number of oblasts in the RSFSR, the Kazakh SSR and the Georgian SSR. In 4 years of the current five-year plan the kolkhozes and sovkhozes of the Kazakh SSR produced an annual average of 86 quintals per hectare of silage crops, of 66 quintals per hectare of feed root crops, of 10 quintals per hectare of annual grasses earmarked for hay and of 11.4 quintals per hectare of perennial grasses. In the Georgian SSR the productivity of silage crops equals 102 quintals per hectare; that of feed root crops--154 quintals per hectare.

The low productivity of feed crops on arable lands is related to a significant degree to violations in agrotechnology and to inadequate applications of fertilizer. At the present time only half of the fields in feed and only 2 percent of haylands and pastures are fertilized.

Considerable losses and a deterioration in feed quality are tolerated due to untimely harvesting of feeds. According to calculations by the All-Union Feed Institute, it would be possible to additionally produce up to 9 million feed units just by curtailing the harvest period.

The effective management of field feed production and the continued improvement in the productivity of natural feed lands must become the basic directions for developing the feed base during the coming five-year plan. For this purpose it is necessary to improve the structure of sowing areas in feed crops, to more extensively assimilate intensive feed crop rotations, to introduce new varieties of feed crops, to adhere to norms for applying fertilizers, to lime acidic soils, to supply agriculture with highly productive feed-harvesting machines, to improve the technology for procuring and storing feed and to implement specialization and concentration of feed production with a consideration of soil-economic conditions.

An improvement in the structure of the sowing area for feed crops is one of our most important goals. Currently, of the 67 million hectares of arable land in feed crops, 15 million (22 percent) are in annual grasses. Within this group of crops the proportion of low-productivity cereal crops is unjustifiably high, whereas crops that are very valuable as feeds--vetch, lupine, maple pea, serradella and other legumes--comprise only 15 percent of this group. The area in sorghum, sorghum-Sudan grass hybrids and other valuable crops is small.

The output of feed units and digestible protein per hectare of crops and the quality of feed must become the criteria for selecting feed crops. Since livestock raising experiences a constant shortage of vegetable protein in feed, specialists must firstly expand the area in perennial and annual leguminous grasses and increase the production of legumes, soybeans and rape.

Not only do leguminous crops have a favorable effect on the productivity of grasses, they also raise the nutritive value of feeds.

In regions where clover is sown (forest and forest-steppe zones of the European portion of the country, sub-taiga and taiga zones of Siberia and the Far East and foothill and mountainous regions of the Caucasus and Central Asia) it would be expedient to significantly expand the area in clover in coming years, and in forest-steppe and steppe zones and on irrigated lands of Kazakhstan, Central Asia and the Transcaucasus--the area in alfalfa.

The structure of annual grasses can be improved by means of expanding the area in Sudan grasses, on sandy soils--the area in lupine, on heavy loamy soils--the area in feed beans, and on irrigated lands in the southern Ukraine, Central Asia and the Transcaucasus--the area in soybeans. We have established the goal of increasing the sowing area of rape, oil-bearing radish, sorghum, sorghum-Sudan grass hybrids and others. Pure crop stands of perennial grasses should be replaced with mixtures of these crops with legumes (vetch, peas, soybeans and others), which will increase their nutritive value.

In the future the main feed crop to be used as silage will continue to be corn. The unfailing condition for producing highly nutritious silage feeds is to raise and ensilage corn when ears are in the milk-wax and waxy stages of ripeness. It is the task of scientists-breeders to supply production with highly productive early or average-maturing corn varieties and hybrids. It is essential to more widely practice the cultivation of feed root crops according to industrial technology, which achieves a productivity of 500 and more quintals per hectares without irrigation and no fewer than 800 with it.

At the same time, we should increase the role of introducing and assimilating feed crop rotations, which according to data from scientific-research institutions achieve a productivity on the level of 6,000-7,000 feed units per hectare of arable land in the regions of the Non-Chernozem Zone, of 5,000-6,000 feed units in forest-steppes and steppes and of 8,000-10,000 feed units with irrigation.

One of the ways to qualitatively improve work involving feed production is to intensify feed production on reclaimed lands. In a resolution passed in October 1984 by the CPSU Central Committee and the USSR Council of Ministers, "On a Long-Term Program of Reclamation and Improved Effectiveness in Utilizing Reclaimed Lands With the Purpose of Steadily Increasing th Country's Food Fund," it is planned to achieve continued expansion of irrigated and drained lands for the development of feed production as a leading direction in the use of reclaimed lands. The aforementioned program calls for increasing feed production on reclaimed lands to 80 million tons of feed units by 1990. With the purpose of utilizing arable land more effectively for feed production it is expedient to widely utilize repeat crops. Growth in the production of coarse, succulent and summer green feeds is to be carried out by means of increasing the productivity of feed crops. The productivity of each hectare in the feed field must be increased to 26-28 quintals of feed units in the country as a whole in the near future.

The development of a stable feed base for livestock raising is impossible without the extensive assimilation of natural feed lands for agricultural purposes and without increasing their productivity. In the country natural haylands and pastures occupy over 320 million hectares, or 60 percent of available agricultural lands, which surpasses the area in arable land by a factor of 1.5 and the sowing area of feed crops by a factor of 5. At the same time, only one-fifth of the feed used in livestock raising is cultivated on this land.

In this country there are about 43 million hectares of land that have been taken over by bushes, 7 million hectares of swamp lands, over 38 million hectares of land that have been subject to wind and water erosion and about 91 million hectares with solonets and saline soils. Only 21.5 million hectares (62 percent) of haylands are suitable for mechanized operations. In a number of regions in the country there has been an increase in the number of worn-out pastures; their erosion by wind is increasing. The slow pace of carrying out agricultural reclamation operations (planting of belts to protect pastures, undersowing of grasses, organizing zones for natural rejuvination and so forth) as well as the great overloading of pastures with livestock have a deleterious effect on the general condition of these lands, which are most valuable for sheep and cattle raising.

This type of situation developed as a result of the weakening of attention by specialists of kolkhozes, sovkhozes and agricultural organs to questions related to improving the use and productivity of natural feed lands. It should be noted that the resources being invested by the state to reclaim haylands and pastures still are not yielding a full return. The productivity of lands has remained on 1966-1970 levels for a long period of time.

Contrary to the established order, the building organizations of USSR Minvodkhoz [Ministry of Water Resources] and USSR Goskomselkhoztekhnika [State Committee of the Agricultural Equipment Association] continue to submit rejuvinated irrigated haylands and pastures to enterprises for operation not after completing the entire complex of measures foreseen by planning-budgetary documentation and after the removal of the first harvest, but as individual reclamation structures that are sometimes in an unfinished state. These organizations carry out comprehensive reclamation work on natural feed lands unwillingly.

As a result, the assignments dealing with increasing the productivity of natural feed lands are not always fulfilled. In the country as a whole the plan for the radical improvement of haylands and pastures was fulfilled by 65 percent during the 10th Five-Year Plan, and during 3 years of the current five-year plan it was fulfilled by 56 percent. The plan for rejuvinating previously-reclaimed feed lands and for the creation of irrigated haylands and pastures has been fulfilled by 72 percent. The average annual volume of work carried out to radically improve natural feed lands decreased from 2.1 million to 1.4 million hectares, to develop irrigated haylands and pastures--from 280,000 to 198,000 hectares and to flood pastures--from 8.8 million to 6.9 million hectares.

There are especially great lags in the fulfillment of measures to raise the productivity of natural feed lands in the kolkhozes and sovkhozes of Volgo-Vyatka region, Khabarovsk Kray, Orlov, Tomsk, Irkutsk, Perm and a number of other oblasts and autonomous republics of the RSFSR and of the Kazakh SSR.

With relatively small expenditures for reclamation and with efficient use of land, natural haylands and pastures can not only become one of the main sources of feed production but can also enable us to free a portion of arable land for use by agricultural crops.

The experience of leading enterprises and data from scientific-research institutions shows that already now it is possible to sharply raise the productivity of natural feed lands and to significantly decrease the cost of feeds.

Positive work experience in organizing the radical improvement of natural haylands and pastures has been amassed in the kolkhozes and sovkhozes of the Lithuanian SSR. The republic's ministry of water resources has been given the obligation not only of carrying out reclamation and cultivation operations but also of radically improving haylands and pastures. In the Lithuanian SSR a service has been created to guarantee that this work is done. Each rayon has organized an administration for reclamation building and installation, which carries out an entire complex of measures and submits plots of land that have been thoroughly prepared for agricultural use to enterprises for operation.

As a result, the productivity of improved natural haylands has increased to 37.5 quintals per hectare in the republic in recent years, and gross feed yield from natural lands has increased by a factor of almost 1.7 (to 2.8 million tons of feed units). In the future it is planned to carry out a complex of measures to raise productivity and to improve the use of haylands and pastures and on this basis to achieve further growth in the production of coarse, succulent and summer green feeds. The country's Food Program calls for carrying out radical improvements of natural feed lands on an area of 27-29 million hectares, for the creation of 2-2.2 million hectares of irrigated haylands and pastures and for the flooding of 36-38 million hectares of pastures within the next 10 years.

Improving feed quality and curtailing the loss of nutritive substances during harvesting of feed crops and haylands are of priority importance. Each day of delay in harvesting grasses decreases their nutritive value considerably. Thus, whereas during the mowing of grasses in the stage of ear formation and during the harvesting of legumes in the stage of budding each kilogram of dry substance contains 0.8-0.9 feed units, during harvesting for hay and haylage purposes at the start of the blooming phase the corresponding figures are 0.7-0.8 feed units, and during the procurement of hay at the height of blooming--only 0.5 feed units. Consequently, the productivity of livestock being maintained on such feeds will differ.

The shortage of highly-productive feed-harvesting machines results not only in a prolongation of the harvest period but also in a delay in the introduction of progressive technologies for feed production. Annual feed losses resulting from a violation of the technology for preparation and storage comprise,

according to data from the All-Union Feed Institute, about 17 million tons of feed units.

The most important reserve for increasing production and for raising the quality of feeds is the introduction into production of progressive technologies for procuring and storing feeds. In the future it is essential to widely utilize new technologies of hay procurement involving active ventilation, rolled hay and the preservation of feeds utilizing bacterial fermentation agents and chemical preservatives.

At the present time, 45 percent of silage and haylage, 10 percent of hay and 12 percent of root crops are stored in capital structures in kolkhozes and sovkhozes. There is only a small number of storage facilities for feeds in the kolkhozes and sovkhozes of the Uzbek SSR, Kazakh SSR, Moldavian SSR, Tajik SSR and Turkmen SSR. At the same time, assignments related to the building and operational start of silage and haylage facilities and of storehouses for root crops and for hay are not being completely fulfilled in these and other republics.

It would be expedient for planning and agricultural organs to foresee the building of feed storage capacities during the coming five-year plan with the goal of essentially meeting all the needs of the country's kolkhozes and sovkhozes for capital structures to store silage and haylage and about half their need for capacities to store procured hay and feed root crops.

In recent years the volume of stockpiled silage in this country has increased to about 250 million tons, but only 20 million tons or 8 percent of the silage is being stored in various preservatives. In the republic the output of silage from a traditionally-stored silage mass ("samokvas") fluctuates from 70 to 90 percent, i.e. about 25-27 percent of the silage mass is lost as a result of waste by oxidation. The utilization of chemical and biological preservatives decreases feed losses and improves feed quality.

At the present time great significance is being attached to questions related to preservatives and to increasing the preservation of feeds. Scientific-research institutions of the RSFSR, the Ukrainian SSR, the Belorussian SSR, the Kazakh SSR and the Lithuanian SSR have worked out and are utilizing various microbiological preparations for preserving feeds.

In 1983-1984 Glavmikrobioprom [Main Administration of the Microbiological Industry] significantly improved the industrial technology for producing Kazakhsil and Litosil dry bacterial fermenting agents, as a result of which they became more technologically effective and easier to use and acquired increased stability and an increased concentration of viable cells. The shelf life of fermenting agents has increased. No raw materials or preparations that are in short supply are required to produce these agents on mass-produced equipment.

The expenditure of bacterial fermenting agents per ton of silage mass fluctuates between 1.5 and 5 grams at a cost of 20-30 kopecks. This is significantly less than the expenditure of chemical preservatives, which are applied at a rate of 4-5 liters per ton.

Considering the fact that until now a comparative evaluation of the economic effectiveness of chemical microbiological preservatives has not been made, it would be expedient in 1985 to carry out extensive production testing of all types of preservatives employed utilizing a single methodology, to make an economic evaluation and to determine the need for these preservatives during the 12th Five-Year Plan and for the long-term. Capacities made from non-rusting metals are needed to ship, store and utilize chemical preservatives; special methodologies are also required, and all of this must be reflected in plans.

The intensification of feed production depends to a significant degree on supplying kolkhozes and sovkhozes with sufficient quantities of good-quality feed-crop seed. A transition during the 12th Five-Year Plan from long-established to more productive grass stands of the short-range type and an increase in the proportion of leguminous grasses such as alfalfa, clover, sainfoin, vetch, rape and others will require significant improvements in the organization of seed farming of feed crops.

Agricultural organs and kolkhoz and sovkhoz specialists must implement the continued concentration of seed farming, assigning it above all to zones with the more favorable soil-climatic conditions, and they must extensively introduce waste-free technology for producing the seed of leguminous grasses. In 1984 the kolkhozes and sovkhozes of the RSFSR harvested 58,500 hectares of alfalfa and clover and threshed the harvest at stationary sites. In this case the yield of grass seed, according to data from RSFSR Minselkhoz [Ministry of Agriculture], increased by a factor of 1.3-2 as compared to regular harvesting and threshing methods.

Exceptionally good results were achieved by Kolkhoz imeni Lenin of Yeyskiy Rayon of Krasnodar Kray, which built a stationary point for threshing alfalfa seed plants with preliminary drying of the entire biological mass via air flow. In the kolkhoz the stationary method was used to thresh alfalfa seed plants from an area of 500 hectares, including with preliminary drying and double threshing--from 200 hectares and with the passage of the mass through two Niva combines on a stationary base--from 300 hectares. With threshing in the field 1.2 quintals of seed were obtained per hectare; with threshing at a stationary base without drying--2.3 quintals per hectare, and at a base with drying facilities--3.5 quintals.

As a result, the kolkhoz produced 130 tons of alfalfa seed in contrast to the planned quota of 50 tons. Moreover, it stockpiled 500 tons of good-quality alfalfa hay and 70 tons of granulated feed made from alfalfa chaff. Additional profits comprised 867,400 rubles. The outlay of 636,000 rubles for the cost of the stationary threshing complex was repaid during the first year. The transition of seed farming of grasses to waste-free technology means not only that there is significant growth in seed production but also that fields in seed plants of grasses can be freed for the sowing of other crops.

During the coming five-year plan it would be expedient to expand the production of forage grain, rich in valuable vegetable protein, in order to significantly increase the effectiveness of utilizing concentrated feeds.

Practical experience urgently speaks of the necessity to accelerate the development of feed production into an independent branch by means of the specialization of intrafarm subdivisions and enterprises in terms of feed production.

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LIVESTOCK FEED PROCUREMENT

UKRAINE'S FEED PROCUREMENT PROGRESS REVIEWED

Kiev SIL'S'KI VISTI in Ukrainian 5 Jun 85 p 1

[Article: "The Progress of Feed Procurement at a Critical Time of Year"]

[Text] Hay-harvesting is in full swing. Having brought out harvesting equipment onto fields and meadowlands, workers of the leading farms of the republic value every hour that is favorable for feed procurement work. Feed production workers in Dnepropetrovsk Oblast have mowed both sown and natural grasses on a third of the fields. This work is well-advanced in the Kherson, Crimean and Odessa Oblasts. Even more actively taking part in the harvesting are the farms of the Forest-Steppe and Woodland areas.

The success of matters to a great extent depends on the skillful and competent utilization of equipment. On many kolkhozes and sovkhozes specialized feed procurement detachments are operating and their technical support is being provided by their partners from rayon agricultural equipment associations [raysil'gosptekhnika]. This sort of work organization helps to keep to a minimum the unforeseen downtime of harvesting machinery and to completely utilize machine capability. These days the machine operators in many of the farms of Cherkassy and Poltava Oblasts operate just this way. In places where the preparations for the green harvest were haphazard, where no thought was given beforehand to the allocation of manpower and equipment, and where maintenance services were not planned as they should have been, in these places they are still trying to get going and they are wasting the most favorable time periods. Let's point out that up to the beginning of the hay-harvesting, a significant number of powerful feed-harvesting machines had been left unrepaired in Sumy, Volyn and Zhitomir Oblasts, and in Khmelnitskiy Oblast several hundred tractor-driven mowing machines were unsuable. Can one depend on the reliable operation of these machines if their repair has often been completed, essentially en-masse?

There are instances when farm managers and specialists do not expeditiously strive to bring in the harvest; let the grasses grow tall, they say, a greater growing mass will pile up. In reality, in these instances they forfeit not only the best times for harvesting but also the nutritiousness of the feed. According to data from the Ukrainian Sciencific and Research Feed Institute, alfalfa harvested at the budding stage yielded 595 quintals of green mass per hectare and more than 19 quintals of nutritive protein. It was discovered that at the beginning of flowering and at the stage of

full flowering, the harvest's yield of green mass is 43 to 84 quintals lower and the protein yield is 2.5 to 5.2 quintals lower respectively. In the final account, in winter, this will result in a significant shortage of produce and in an over-expenditure of fodder to produce one feed unit.

We must also remember that the timely harvesting of the first hay crop is absolutely vital for the subsequent development of the harvest on perennial crop sown areas.

In a number of oblasts a tendency has been noted to give preference to haylage during the accumulation of feed crops beginning with the first days of harvesting grasses, and the procurement of hay is put on the back-burner. This year, not less than 70 percent of sown and natural grasses from the first hay crop must be mown down during this period. Only under such a condition will feed production workers of the republic be able to cope with the task assigned to them - to increase the procurement of this valuable feed 14 percent as compared to last year, and to procure about a ton more of the feed per cow. The farms of Poltava, Kharkov, Kiev, Chernovtsy and Vinnitsa Oblasts have been excessively keen on the storing of green mass in haylage facilities. In Nikolayev Oblast in the first few days of the harvest, tens of thousands of tons of haylage were piled up, however, the procurement of hay was practically not undertaken at all. It is necessary for rayon agroindustrial association councils to immediately take measures to correct this situation. At this time the procurement of hay must be the number one task of every feed procurement brigade. The storing away of green mass in haylage structures is appropriate only under those conditions where the procurement of high quality hay is impossible.

From the start of the harvesting of grasses in the farms of Rovno Oblast, drying units for the preparation of grass meal and chopped straw have been completely engaged in the harvesting effort, as have the workers of the oblast, who joined the work with the goal to create a year and a half's stock of coarse and succulent feeds for the communal herds. The workers are similarly doing well in Poltava area. But in Zhitomir, Zaporozhye and Ternopol Oblasts this powerful equipment is as yet essentially standing idle, or is put to use in any which way. Dilly-dallying must definitely cease and drying units must be utilized to their full capacity. And this is all the more so since procurement of these feeds can be carried out under any kind of weather.

Managers, farm specialists and rayon agroindustrial associations must pay special attention to the quality of the fodder produced. In order to achieve expeditious monitoring of produced feed quality, and at the same time to do this effectively, we should immediately put to work all existing laboratories including those of the technical schools and universities.

Many feed procurement detachments, teams and brigades work under a collective contract. The wages of all production subdivisions involved in feed procurement must be directly tied to the final objective - the quality of the fodder produced. The entire able-bodied population of a village should be involved in the procurement of feeds - and especially of hay. Here, managers should have their say too.

A strong feed base will enable the republic's livestock breeders to successfully fulfill the plans and socialist obligations of the last year of the 5-Year Plan and of the 5-Year Plan in general for the production and delivery to the state of farm products.

12911
CSO: 1811/43

LIVESTOCK

IMPLEMENT CENTRALIZED SYSTEM OF LIVESTOCK, MILK SHIPMENTS

Moscow ZAKUPKI SELSKOKHOZYAYSTVENNYKH PRODUKTOV in Russian No 5, May 85 pp 14-16

/Article by I. Fedorus, chief of the Administration for Raw Material Procurements and Farm Contacts With Branches of the APK of the USSR Ministry of the Meat and Dairy Industry: "Overall Approach"/

/Text/ An important trend in the work of enterprises of the meat and dairy industry with regard to the development and strengthening of direct contacts with partners in the agroindustrial complex -- kolkhozes and sovkhozes -- is that of converting over to the acceptance of livestock, poultry and milk directly on the farms and the centralized shipping of such products by means of centralized motor transport equipment.

A most important obligation of a procurement specialist is that of making it easier for the kolkhozes and sovkhozes to market their products. The introduction of the progressive form for procurements promotes a reduction in labor and material expenditures during the period when the farm products are being delivered to the processing enterprises and it makes it possible to organize livestock and milk shipments in a more efficient and rhythmic manner. At the same time, improvements are realized in the degree to which the enterprises are supplied with raw materials and in the utilization of their production capabilities. In the process, the farms do not divert resources and they do not bear expenses for delivering the livestock products to the acceptance points; this makes it possible to concentrate more fully the material and labor resources directly in the production sphere.

In 1984, for the country as a whole, 37 percent of the overall volume of livestock delivered for industrial processing and 34 percent of the milk were shipped from the farms on a centralized basis using a farm's own equipment or borrowed units.

It bears mentioning that, compared to 1983, the number of livestock delivered by means of transport provided by the procurement specialists increased by 47 percent and milk -- by 28 percent. This was associated to a considerable degree with an increase in the influence of recently created agroindustrial associations.

In a number of union republics and oblasts, the industrial workers, jointly with their partners, achieved considerable success in expanding this progressive

form for product procurements. For example, it accounts for approximately 80 percent of the centralized shipments of livestock in the Belorussian SSR and Lithuanian SSR and milk in the Estonian SSR, 40-55 percent or more of the livestock being shipped by means of transport equipment of procurement specialists in the Ukrainian SSR, Azerbaijan SSR, Moldavian SSR, Latvian SSR, Kirghiz SSR and Armenian SSR and milk -- in the Kazakh SSR, Georgian SSR, Lithuanian SSR, Moldavian SSR, Kirghiz SSR and Tajik SSR. This was achieved as a result of constant and purposeful work on the part of the ministries, production associations and enterprises of industry, agricultural organs and state inspections.

In the Belorussian SSR, questions concerned with the introduction of centralized shipping operations are examined on a regular basis, and no less often than once annually, by the board of the Ministry of the Meat and Dairy Industry. On several occasions over the past few years they were the subject of a discussion by the joint boards of Minmyasomolprom /Ministry of the Meat and Dairy Industry/, Minzag /Ministry of Procurements/ and Minsel'khoz /Ministry of Agriculture/. A great amount of work has been carried out in the various areas. As a result, the republic presently occupies a leading position in the introduction of centralized shipping for livestock and milk.

At the same time, the conversion over to accepting livestock, poultry and milk directly on the farms is being carried out at unsatisfactory rates in a number of republics, oblasts and krays. The May (1982) Plenum of the CPSU Central Committee assigned the task of completing the conversion over to having these products of livestock husbandry accepted in the production areas and their shipments by means of specialized motor transport during the 12th Five-Year Plan. Less than 6 years remain for carrying out this task. However, by the end of 1984 the proportion of livestock being accepted directly on farms in the RSFSR amounted to only 24 percent and in 24 oblasts of the republic less than 10 percent; in the Kazakh SSR -- 19, Uzbek SSR -- 10, Turkmen SSR -- 5 percent. The conversion over to accepting milk directly on the farms is being carried out slowly in the Ukrainian SSR, where only 25 percent of it is being shipped by means of transport provided by the procurement specialists, in the Latvian SSR -- 27, Azerbaijan SSR -- 18, Turkmen SSR -- 13 percent and in the Uzbek SSR -- 10 percent.

One reason for this situation is insufficient work by the republic ministries, production associations and enterprises with regard to ensuring more complete utilization of the reserves and opportunities available for expanding the acceptance of products at the sites and the centralized shipping of livestock, poultry and milk by strengthening collaboration with APK /agroindustrial complex/ partners, focusing attention on the new organs for administering the agroindustrial complex and actively introducing leading experience.

Experience has shown that it is only on the basis of joint effort on the part of all partners in the agroindustrial complex that it is possible to accelerate considerably the conversion over to this form for livestock and milk procurements. Belgorod Oblast serves as a typical example. Here, as a result of close interaction among the kolkhozes, sovkhozes, enterprises of the dairy industry, oblselkhoztekhnika, state inspections and supporting enterprises and organizations and under the guidance of party and soviet organs, a large volume

of preparatory work was carried out within a brief interval of time on farms and at dairy plants, for the purpose of organizing the delivery and acceptance of milk directly in the production areas and centralized shipments using the specialized transport equipment of industry. Thousands of kilometers of approach roads leading to the farms were built.

A large quantity of equipment was installed at kolkhozes and sovkhozes in Belgorod Oblast for the cooling, cleaning, storage and weighing of milk and technical servicing for this equipment was organized. The livestock breeders, accountants and delivery-drivers received instructions in both the technology for producing high quality milk and in the rules for the delivery and acceptance of milk. Extensive preparatory work was carried out at the enterprises. All of the dairy plants concluded labor collaboration agreements with the kolkhozes and sovkhozes, which called for mutual obligations in the timely delivery and acceptance of milk and for improving its quality.

As a result of energetic work by all partners in the complex, the introduction of centralized milk shipments has been completed throughout the oblast. At the present time, the meat industry is actively converting over to the progressive form for procurements. Jointly with Selkhoztekhnika, heavy freight trucks have been allocated for this purpose, the parking areas for the vehicles have been designated and solutions have been found for other problems. Last year, 40 percent of the livestock here were shipped on a centralized basis. The work volumes for centralized shipments were set forth in contractual agreements with the kolkhozes and sovkhozes.

The Tajik SSR serves as an example of the fruitful results to be realized from an overall solution for the tasks concerned with converting over to accepting products on the farms. A joint order by Minmyasomolprom, Minselkhoz, Minzag, Goskomselkhoztekhnika and Minplodoovoshchkhoz /Ministry of the Fruit and Vegetable Industry/ has been published in the republic calling for measures aimed at accelerating the conversion over to accepting milk directly at the kolkhozes and sovkhozes and shipping it by means of specialized transport provided by industry. It calls for an entire complex of measures required for introducing this progressive procurement method into operations: the construction of access roads leading to the farms, the creation of delivery and acceptance points for the milk, the allocation of transport equipment and fuel and others.

In January 1983, the Ministry of the Meat and Dairy Industry organized an inspection of the technical status of the farms at each establishment and, jointly with the agroindustrial associations, it developed a plan for converting the kolkhozes and sovkhozes over to on-site deliveries and for the centralized shipping of milk. Constant control is being exercised over the carrying out of this plan.

In 1984, the proportion of milk accepted at sites throughout the republic amounted to 59 percent and in some rayons: Dzhilikulskiy, Kurgan-Tyubinskiy and Kumsangipskiy -- 70-90 percent. In 1985, the conversion over to this method for delivering and accepting milk was completed in many rayons throughout the republic.

It is important to note that in the process the quality of the products is improving from year to year. For example, whereas in 1975 only 10.4 percent of the milk was classified as being of 1st grade quality, in 1984 -- 81.3 percent and with more than one half refrigerated.

In Stavropol Kray, efficient and harmonious work by the partners in the agroindustrial complex made it possible, within a brief interval of time and for the very first time in the country, to convert over completely to on-site deliveries and acceptance and to centralized shipments of poultry.

The collectives of many industrial associations and enterprises must multiply their efforts aimed at introducing the acceptance of livestock at production sites and shipments by specialized transport. This applies in particular to branch workers in the Russian Federation, the Ukraine, Uzbekistan, Kazakhstan, Tajikistan and Turkmenia. At the present time, firm daily control must be established at all levels so as to ensure that each production association and enterprise of industry, jointly with the APK partners, persistently implements the overall program for converting over to the acceptance of livestock, poultry and milk directly at the kolkhozes and sovkhozes and also to the centralized shipping of these products by means of specialized motor transport.

Importance is also attached to raising the effectiveness of centralized shipments of livestock and milk in those areas where it has been introduced into operations. Here we have in mind the need for accelerating or completing the preparation of the farms and improving the organization of raw material shipments and the use of specialized motor transport equipment. Presently the transport expenditures of industry for livestock and milk deliveries will amount to approximately 800 million rubles annually. An increase in the effectiveness of the shipping operations and a reduction in the cost for delivering each ton of raw material will represent a contribution towards an overall reduction in the production costs for the goods produced.

For 1985 the ministry established a task for the branch's enterprises which called for the centralized shipping of livestock and milk to be increased by 33 and 21 percent respectively compared to the 1984 level.

Guided by the decisions handed down during the April (1985) Plenum of the CPSU Central Committee and in an attempt to prepare in a worthy manner for the 27th CPSU Congress and the 40th anniversary of the victory achieved by the Soviet people during the Great Patriotic War, a number of labor collectives of the meat and dairy industry launched a valuable initiative -- jointly with the kolkhozes, sovkhozes and other partners in the agroindustrial complex, to accelerate the carrying out of the decisions of the May (1982) Plenum of the CPSU Central Committee and to complete during 1985 and subsequent years of the 12th Five-Year Plan the conversion over to accepting livestock, poultry and milk directly on the farms and the centralized shipping of these products by means of specialized transport.

Workers attached to enterprises of the Stavropol Production Association of the meat industry have vowed in 1985 to ensure completely the centralized shipping of animals from all specialized complexes for the fattening of cattle and poultry-broilers.

The collective of the Berestovitskiy Butter and Cheese Plant, jointly with kolkhozes and sovkhozes in Berestovitskiy Rayon and a branch of the Grodno Motor Vehicle Base No. 6, adopted socialist obligations -- throughout the first 6 months of 1985, to convert all farms over to on-site milk deliveries and centralized milk shipments and to ensure the sale to the state of not less than 90 percent of the milk at 1st grade quality.

In developing direct contacts and collaboration with partners in the agroindustrial complex, the plans called for the completion in 1985 of the conversion over to accepting livestock husbandry products in the production areas and the centralized shipping of such products by the collectives of farms and the Zernograd Dairy Plant in Kagalnitskiy Rayon in Rostov Oblast, kolkhozes, sovkhozes and meat combines in Grodnenskiy and Slonimskiy rayons in Grodno Oblast, farms and dairy enterprises in Nadvornyanskiy, Gorodenkovskiy and Snyatynskiy rayons in Ivano-Frankovsk Oblast, Zolotonosha Butter Making Combine in Cherkassy Oblast, farms in Bazar-Kurganskiy, Ala-Bukinskiy and Dzhangi-Dzholskiy rayons, Kurgan and Karavanskiy dairy plants in Osh Oblast and the Slutsk Cheese Making Combine in Minsk Oblast.

In the interest of raising the moral and material interest of enterprise workers in accelerating the introduction of the progressive form for raw material procurements, the indicator for the proportion of centralized shipments of livestock, poultry and milk has been included in the conditions for the all-union socialist competition for collectives of enterprises of the meat and dairy industry and also in the statute on awarding bonuses to enterprise workers.

At the present time, in connection with converting over to accepting livestock on the farms, a discussion has commenced among agricultural, procurement and meat industry workers concerning the best method for livestock deliveries and acceptance and for maintaining accounts on such operations. Two acceptance methods are being employed: according to live weight and according to the quantity and quality of meat obtained following slaughtering.

For the purpose of solving this problem in the Ukrainian SSR, Lithuanian SSR and a number of oblasts in the RSFSR, an extensive production experiment is being carried out with the aid of scientific-research institutes involving a comprehensive check on the effectiveness of this system for the delivery and acceptance of livestock. In accordance with its program, results should be obtained on the acceptance of livestock according to the weight and quality of the meat, with credit towards fulfillment of the plan for live weight procurements, determined by weighing carried out on the farms and, in the other instance, according to the live weight and nutritional condition established at a kolkhoz or sovkhoz. Towards this end, the USSR Ministry of Agriculture developed a new GOST /state standard/ for cattle.

The USSR Minmyasomolprom and USSR Minselkhoz have approved the method to be used for carrying out the experiment. In accordance with its results, the USSR Council of Ministers will be presented with specific proposals in 1986 for improving the system for livestock deliveries and acceptance. The ministries and departments of the Ukrainian SSR and Lithuanian SSR and the collectives of meat industry enterprises, where the experiment is scheduled to be carried out,

must ensure that reliable conditions are available for its successful completion and for obtaining objective data.

7026
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REGIONAL DEVELOPMENT

FERTILIZER INFRASTRUCTURE TO SUPPORT SOIL FERTILITY EFFORTS

Non-Chernozem Soil Productivity

Moscow EKONOMICHESKAYA GAZETA in Russian No 14, Apr 85 p 16

[Article by A. Postnikov, director of the All-Russian Scientific Research and Planning-Technological Institute of Chemicalization in Agriculture: "The Effectiveness of Fertility Is Measured by the Harvest: How to Raise the Productivity of Agricultural Lands in Russia's Non-Chernozem Zone"]

[Text] The productivity of any agricultural crop depends on many factors. It is incorrect to assume that a larger quantity of mineral fertilizer will without fail effect increased return per hectare. For example, the farmers of Medvedevskiy Rayon, Mari ASSR, which is carrying out work on the comprehensive chemicalization of agriculture, almost doubled their use of mineral fertilizers but their yield increased insignificantly. The return on 1 kilogram of nutritive substance even dropped in some enterprises. What is the problem?

Agrochemists carried out research and discovered the reason for this--two-thirds of all lands here were highly acidic and were in need of reclamation liming, i.e., enriching the soil with calcium, which is essential for normal plant growth and development. Moreover, it provides favorable conditions in the soil environment and protects humus from erosion. It is no accident that calcium is called the "guard of soil fertility."

Specialists of kolkhozes and sovkhozes and of Selkhozkhimiya [Agricultural Chemical Association] of Medvedevskiy Rayon have developed specific liming programs for acidic soils in every field in a crop rotation and are actively carrying it out. As a result of reclamation liming the quantity of acidic soils here decreased sevenfold and now comprises about 8 percent of the total area of arable land (as compared to 60 percent when work began). The harvest of grains increased by 10 quintals and reached 27 quintals per hectare, and in Semenovskiy Sovkhoz, for example, 40 quintals are harvested per hectare.

All agricultural enterprises of the Non-Chernozem Zone and of Russia's Far East must travel a similar path of development. But they are faced with many difficulties. At the beginning of this year about 75 percent of these lands had an increased acid content and were in need of reclamation liming. As a

result of the use of increasing doses of physiologically-acidic mineral fertilizers, of intensive soil cultivation and of growth in the yield of agricultural crops the share of exchange calcium expected from the soil is increasing, which is worsening the condition not only of acidic sod-podzol soils but of chernozems, which are breaking down, as well.

The Primary Goal

The problem is not a new one but the approach to its solution must be different from that of 15-20 years ago. Production development and the use of mineral fertilizers at the contemporary stage make reclamation liming and permanent application of lime-containing materials the primary goal within the entire complex of agrotechnical measures.

Significantly fewer expenditures are required for liming excessively-acidic soils as compared with utilizing mineral fertilizers or with drainage. At the same time, the effectiveness of mineral fertilizers and the return of a drained hectare decreases by half on non-limed soils. Unfortunately, due to the non-comprehensive implementation of reclamation work over 40 percent of all drained lands have an increased acid content and produce at half capacity. This is why chemicalization and reclamation must be planned within a framework of a single comprehensive program.

Our institute's research shows that in order to create the optimal structure of arable soils it is necessary to carry out reclamation liming annually on 9-10 million hectares depending on the degree of soil acidity and to utilize 55-65 million tons of calciferous fertilizers (translated into calcium carbonate) for this purpose. In recent years only half of the aforementioned area has been limed and only one-third of the needed reclamation materials have been applied.

The main reason for this type of situation is the shortage of calciferous fertilizers, the industrial production of which is being organized extremely slowly and in inadequate volumes. At the same time, it has been proven that sources of raw materials for the production of calciferous fertilizers are available almost everywhere. Moreover, in most oblasts and autonomous republics it is possible to decrease the shortage of calciferous fertilizers by expanding and organizing the production of calciferous meal in existing carbonate-extracting enterprise.

During the years of the current five-year plan there was somewhat of an increase in the volume of supplies of calciferous fertilizers as compared to the preceding five-year plan. However, a number of ministries and departments decreased intended plans for producing these and for supplying them to RSFSR agriculture. During the last 4 years there was an undersupply of 12 million tons of calciferous fertilizer. The enterprises of the republic's Ministry of Building Materials alone owe about 7 million tons. What is the reason for this?

In our opinion, the main reason is that calciferous fertilizers make up an insignificant proportion of the cost of commercial production of enterprises within these ministries, i.e. for them calciferous fertilizers are a secondary

matter. Thus, the cost of calciferous fertilizers within commercial production of enterprises of RSFSR Minpromstroymaterialov [Ministry of Industrial Building Materials], the main supplier of liming meal for the republic's enterprises and the party responsible for about half of the total volume of planned deliveries of fertilizers for the purpose of liming soils, comprises just 1.4 percent.

The unsatisfactory situation that has developed in the course of many years with regard to reclamation liming is not the result of objective difficulties. The country has at its disposal the necessary production-economic potential and raw-materials base to solve, within the next 2-3 years, all the problems related to supplying all the needs of agriculture as concerns liming materials and equipment for applying them and for other infrastructural purposes. What must be done is to single out this problem as a priority in the intensification of agriculture in the RSFSR's Non-Chernozem Zone, which requires the determination of the necessary measures supported by specific capital investments and material resources. Calculations show that on soils with an increased acidic content the annual underproduction of farm products, translated into feed units, comprises 24-29 million tons in the country as a whole. For example, in Amur Oblast this is the main reason why enterprises have not been able to increase the production of a valuable crop such as soybeans in the course of many years.

Evidently we should concentrate the function of the client for the building of plants and shops to be used for the production of calciferous meal in the hands of one department which is most interested in the production of this product. The all-union association Soyuzselkhoztekhnika [All-Union Agricultural Equipment Association] could act as this client.

The Ministry of Fertilizer Production could participate greatly in increasing the effectiveness of farming in the Non-Chernozem Zone by achieving the output of calcium-ammonium nitrate, which for all practical purposes does not acidify the soil, does not cake, is explosion-proof, is shipped and stored in heaps and is a good product for the organization of fertilizer mixtures. This fertilizer is being used successfully in many foreign countries.

For the Special "Fertility" Account

As we know, expenditures for liming acidic soils are repaid out of the state budget. However, not a single kolkhoz or sovkhoz is responsible for the use of these resources, has them at its disposal or has the opportunity to affect the contractor.

In connection with this it would be expedient for the agricultural enterprise to have a special "fertility" account which would include budget resources for reimbursing expenditures made for liming, for adding phosphorus to the soil, for the use of peat and for land reclamation. These resources should be allocated to an enterprise not annually, but for the entire five-year plan in order to enable kolkhozes and sovkhozes to deal with questions relating to the order and sequence of work to increase soil fertility according to local conditions and the specific situations that develop with regard to the land fund.

If an enterprise has the opportunity to utilize a sufficient quantity of mineral fertilizers and the long-cultivated soils of its land fund are basically acidic then it is expedient to first lime the soil thoroughly.

The republic's agricultural ministry made a proposal concerning the transfer of budget resources for liming as well as phosphorus application and the use of peat to the accounts of enterprises, but this valuable initiative was not supported by the USSR Ministry of Finance.

Where to Store and When to Apply It

The development of chemical reclamation of acidic soils is also being hindered in the republic by a weak material-technical base for the storage of calciferous fertilizers. The associations of Rosselkhozkhimiya [All-Russian Agricultural Chemical Association] have only 17 percent of the necessary storage capacities for storing the most valuable powdered calciferous fertilizers, whereas in oblasts such as Amur, Orlov, Tula and Ryazan such capacities are practically absent. The main reasons for the non-fulfillment of work to build capacities in the volumes planned for the current five-year plan include insufficient allocations to the RSFSR Ministry of Agriculture of the limits of contract operations by union building ministries, especially USSR Mintransstroy [Ministry of Transportation Building], USSR Minpromstroy [Ministry of Industrial Building] and USSR Minstroy [Ministry of Building], as well as the absence of the necessary attention to these objects on the part of contract organizations.

This is why powdery calciferous fertilizers, which comprise over half of the total number of fertilizers, are often stored in the open, why they become moist, lose their friability and become unsuitable for uniform application. The consequence of this is a decrease in liming quality.

As a result of the lack of preparation of the production base a significant amount of liming work is carried out during the winter period. Scientific recommendations on this question are fairly vague. For this reason, in a number of oblasts and rayons instead of active work to create good conditions for the storage of liming materials there is a continuation of plans to apply lime during the most unfavorable period--during winter in the snow. According to data from the All-Russian Division of VASKhNIL [All-Union Academy of Agricultural Sciences imeni V. I. Lenin], with this type of application of liming fertilizers up to 40 percent of the the reclamation agents used are lost. Our institute has developed a new technology for the per-layer application of lime which achieves a uniform distribution of the reclamation agent in the soil.

The high level of effectiveness of liming soil has been proven by practice. Thus, during the years of the 10th Five-Year Plan in the Non-Chernozem Zone the share of expenditures for liming a hectare of arable land comprised only 5-6 percent of total expenditures (in monetary terms) for the utilization of organic, mineral and liming fertilizers. The share of agricultural products received additionally as a result of liming is 20-21 percent of the cost of the total increase in yield.

Following the assignment of the RSFSR Council of Ministers, the institute worked out an interdepartmental program of comprehensive chemicalization of agriculture for 1986-1990 with long-range indicators to 1995. The program foresees a systematic increase in soil fertility in all regions of the RSFSR and the development of the necessary infrastructure to achieve a normative return on investments into this important branch. Nevertheless, RSFSR Gosplan is slow in examining this important question as it points to the shortage first and foremost of capital investments in the "agricultural" branch. Evidently, the problem of expanded reproduction of soil fertility must be solved by means of the more complete utilization of the possibilities of enterprises themselves and of capital investments directed into the chemical industry as well as into agriculture. It is in this that the effectiveness of the planning of the agro-industrial complex on a national scale will be demonstrated.

Follow-Up Commentary on Liming Problem

Moscow EKONOMICHESKAYA GAZETA in Russian No 19, May 85 p 16

[Article by V. Sokolov, board member of RSFSR Gosplan: "Responding to EKONOMICHESKAYA GAZETA"]

[Text] The following is a response to the article, "The Effectiveness of Fertility Is Measured by the Harvest" (Number 14).

This article raises important questions related to the liming of soils, the solution to which will be important for further development of the country's agriculture. At the present time with the participation of the RSFSR Council of Ministers measures are being developed for the liming of acidic soils in 1986-1990. It is planned to increase the production of calciferous and dolomite meal. Meanwhile, the main supplier of these products is USSR Minstroymaterialov [Ministry of Building Materials]. The delivery of technological, mining, loading-transport and crane equipment to enterprises producing calciferous meal has been determined.

An important place is being given to the question of the preservation of chemical reclamation agents. In connection with this it is planned to assign the building and introduction into operation of mechanized storehouses for the storage of liming materials to the 12th Five-Year Plan. Measures have also been worked out that are related to improving the quality of fertilizers, to increasing the effectiveness of utilizing them, and to decreasing losses during the shipment, storage and application of chemical reclamation agents into the soil.

As for a comprehensive program of chemicalization in the future developed by VNIPTIKhim [All-Union Scientific Planning and Technical Institute of the Chemical Industry], it is being further developed in RSFSR Minsel'khoz [Ministry of Agriculture].

8228
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AGRO-ECONOMICS AND ORGANIZATION

STRENGTHEN SUPPORT FOR PRIVATE PLOT LIVESTOCK RAISING, SALE

Moscow SOVETY NARODNYKH DEPUTATOV in Russian No 3, Mar 85 pp 93-97

/Article by V. Sidorenko, candidate of economic sciences and deputy chief of the Main Administration for Subsidiary Enterprises and Trades and Subsidiary and Private Farms of the USSR Ministry of Agriculture: "Unused Opportunities"/

/Text/ Over the past few years, a fine social climate has been created around the rural farmyards and it is aiding them greatly. In addition to stabilizing the status of affairs in the private sector, it has also brought about an increase in the number of livestock on the private plots of citizens and it has raised the production of meat and milk on these plots. Thus the number of cattle in this sector in 1983 increased by 6.6 percent compared to the average annual number during the 10th Five-Year Plan, cows -- by 2.2, hogs -- by 10.9, sheep and goats -- by 12.8 and poultry -- by 5.6 percent.

Improvements were realized in support for the population in the form of meat and meat products by means of internal production and their marketable surpluses increased considerably. In 1983, for example, the sale by the population of livestock and poultry throughout the country increased by a factor of 1.4 compared to 1980.

At the present time, four principal consumers are purchasing livestock from rural residents: kolkhozes and sovkhozes on the basis of agreements, consumer cooperation, state procurement specialists -- meat combines and, finally, the kolkhoz market. Each of these purchasers enjoys equal rights and the selection of any one of them is entirely at the discretion of the citizen involved. But in accordance with existing practice, the chief channels for the sale of meat by the population are the public farms and consumer cooperation.

The kolkhozes, sovkhozes and citizens are extremely interested in the raising and selling of livestock based upon agreements. The private plots receive assistance from the public farms in managing their rural farmyards and the state purchase prices are sufficiently high, especially following the price increases of 1983. They compensate fully for the expenses borne by the citizens for the production of goods and they provide them with considerable profit.

Nor are the public or state farms at a loss. As is well known, the livestock and poultry purchased by the kolkhozes and sovkhozes on the basis of contracts with kolkhoz members, workers, office workers and other citizens are sold by

these farms to the state. They are credited to them in the production volume and towards fulfillment of the state plan for procurements of agricultural products, with the established bonuses being paid out for the quantity and quality indicators. The amount of these bonuses, as is known, is quite considerable.

The raising and purchasing of livestock, poultry and milk on the basis of contracts with citizens enables the kolkhozes and sovkhozes to use additional labor and feed resources for the production of livestock husbandry products and to utilize the farm buildings of the population. Thus, computations carried out for kolkhozes in the Ukrainian SSR reveal that if the livestock, poultry and Milk purchased from kolkhoz members were produced at the kolkhozes, 36,000 additional workers would be required and more than 107 million rubles would have to be expended for wages.

Positive advances in the private sector became more noticeable following the publication of the 8 January 1981 Decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Additional Measures for Increasing the Production of Agricultural Products on the Private Plots of Citizens." This legal document has raised the economic interest of public farms in developing the private sector.

In order to place the development of the private economy on a sound basis, the local soviet and agricultural organs are carrying out a great amount of work directed towards strengthening the economic, organizational and technological relationships between the public and private farms, as component parts of a single food complex for the country. It was precisely because of this that firm business-like relationships were established between them, relationships which breathed new life into the rural farmyards and eventually halted its long-term backwardness.

Unfortunately, doubts are still being expressed at the present time concerning the advisability of milk and meat being purchased by kolkhozes and sovkhozes from the population based upon contracts, with such output being credited towards fulfillment of the production and procurement plan and with the established bonuses being paid out. Instead, it has been proposed that the monopoly in the purchasing of products from citizens be transferred over completely to consumer cooperation.

Such proposals are not only unwise but in fact they are even harmful. Indeed, even with its undoubtedly broad possibilities, consumer cooperation is nevertheless still unable to solve the many problems of the rural farmyards, which the kolkhozes and sovkhozes are capable of handling. Another problem lies in the fact that they must set their hopes on the private plots when carrying out the production and procurement plans for meat and milk and assign the work in a manner such that these plans are fulfilled mainly by means of the public economy. If the kolkhozes and sovkhozes are isolated apart from the private plots, then the production cooperation which has developed between them in recent years will be disrupted. In such a case, the negative trends and phenomena in the development of the rural farmyards which took place earlier and which caused serious harm may once again appear.

Obviously, this is not meant to detract from the role played by consumer cooperation. The soviet organs have been granted considerable authority in exercising control over its operations in organizing the purchasing of agricultural products from the population and ensuring that the population is supplied with food products, especially butter. In accordance with the 8 January 1981 degree of the CPSU Central Committee and the USSR Council of Ministers, it is obligated even to expand the procurement activity in the rural areas and to develop a commission trade in meat and other agricultural products.

The union republic councils of ministers and the local soviet organs must further improve the work of consumer cooperation organizations in the procurement of livestock husbandry and farming products from the private plots of citizens, at agreed upon prices. It must be provided with appropriate stores and warehouses. No less than 70 percent of the meat and meat products purchased from citizens must be sold in consumer cooperation stores located in stores and worker settlements.

For the purpose of raising the interest of citizens in the sale of agricultural products, the union republic councils of ministers provide the republic unions of consumers' societies with construction materials, mineral fertilizers, small automobiles, motorcycles and other goods which are in high demand, for sale to the suppliers of meat and dairy products. The volumes for the sale of mixed feed for livestock being maintained on a private basis by citizens have been established. The local soviets and their permanent committees and deputies must display concern for ensuring that all goods which are in short supply are made available in the manner intended.

Practically all of the products purchased by consumer cooperation remain in the resources of a republic or oblast and are used for improving public catering and also for sale to citizens through stores of gorkooptorg /city cooperative trade organization/ through the marketing funds for good goods. This is producing noticeable results. For example, over the past few years the meat purchases by consumer cooperation from the population in Omsk Oblast have increased fourfold and this has made it possible to improve considerably the supply of these products for residents of industrial centers.

However, notwithstanding the obvious interest in the various areas, consumer cooperation nevertheless is still not purchasing completely the available surpluses of agricultural products from the private plots of citizens. There are a number of reasons for this. The construction of procurement points, especially in remote regions, is proceeding slowly, there are very few refrigeration chambers and there is a shortage of transport vehicles and packaging materials. The procurement offices are by no means staffed by skilled personnel. As a result, the trade in meat and meat products procured by consumer cooperation is organized in a weak manner in many cities and industrial centers. It turned out that neither the local soviet organs nor consumer cooperation were prepared for the new conditions.

A new development here had to do with the fact that the work concerned not simply the sale of traditional agricultural crop surpluses, as that portion which remains with the rural residents is referred to, but rather the planned

purchases of milk and meat which earlier they planned to produce and sell in conformity with an agreement concluded with a kolkhoz, sovkhoz or consumer cooperation. It would seem that this portion of the output can and must be taken into account by t e mentioned enterprises in their plans. And timely preparations must be made for its introduction, the procurement base for the acceptance, processing and storage of products must be created in advance and the necessary material and monetary resources must be made available.

Recently the failure to take into account all of these peculiarities produced a situation in a number of oblasts wherein serious difficulties were created in connection with the acceptance of livestock and poultry, especially during peak periods. Naturally, this aroused numerous complaints and considerable criticism on the part of the population.

Let us examine how work is proceeding in Kuybyshev Oblast. Here the soviet organs are carrying out consistent measures aimed at intensifying the production and purchases of livestock and poultry mainly on public farms. At the same time, active work is being carried out in connection with increasing the production and purchases of agricultural products on the private plots of citizens. Kolkhoz members and the manual and office workers of sovkhozes are being presented with tracts of land for the production of hay and the grazing of livestock and assistance is being furnished in acquiring feed through the sale of such materials to citizens and also through payments in kind. Measures are being undertaken to improve the pedigree qualities of the privately owned livestock. The population's requirements for sowing and planting material are being satisfied to a better degree and assistance is being furnished in the management of private plots and in the provision of agronomic and zooveterinary services. During 11 months of last year, the deputies, agricultural executive committees and workers attached to procurement offices inspected 180,000 private plots of citizens. Agreements were concluded with them for the sale of surplus meat, eggs, milk, potatoes, vegetables and also cattle, hogs and poultry. Workers attached to 527 stores of the raypo /rayon consumers' society/, 92 dining halls and 14 livestock slaughtering points participated in the work concerned with the purchasing of these products. The oblispolkom /oblast executive committee/ created special motor vehicle columns for the timely shipping of products.

Special reproduction farms have been created at a number of kolkhozes and sovkhozes for the purpose of satisfying more completely the requirements of the population for young livestock and poultry. For example, a farm for obtaining young pigs has appeared at the Trudovoy Sovkhoz in Neftegorskiy Rayon and at the Krasnoye Znamya Kolkhoz in this same rayon -- a farm for the raising of ducks. All of this has brought about certain positive results. The numbers of cattle, hogs and poultry on the private plots are increasing with each passing year. As a result of procurements of surplus agricultural products from the population, continuous trade is being ensured for meat, sausage items, smoked foods and semi-finished products at all stores of the municipal cooperative trade, public catering enterprises, Selkhozprodukty stores and also at kolkhoz markets.

It would seem that one could take pleasure in this fact. But this is only at first glance. The oblast could achieve a great deal more and realize results which would surpass the present ones to a considerable degree. What is the reason for this insufficient use of available potential?

Consumer cooperation plays a leading role in the organization of procurements of surplus agricultural products in Kuybyshev Oblast. On the basis of agreements, it purchases more than 44 percent of the overall volume of meat and meat products being sold by citizens. Actually, consumer cooperation throughout the oblast has turned out to be unprepared for carrying out the functions assigned to it. First of all, the required logistical base, as called for in the above-mentioned decree of the CPSU Central Committee and USSR Council of Ministers, has not been created. By no means do all of the rayons have acceptance-procurement points and only 14 out of 25 of them have slaughtering points. There are almost no refrigeration arrangements for the storage of meat and meat products and there is a shortage of transport equipment needed for carrying out shipments.

A weak production base is seriously holding back the acceptance of livestock from the population. The facts are very clear on this point. For example, in August of last year the Krasnoarmeyskiy raypotrebsoyuz /rayon union of consumers' societies/ purchased only 400 head of cattle from 1,500 offered by citizens. The acceptance of cattle from the population was also organized in a wretched manner in Neftegorskiy and a number of other rayons throughout the oblast. This has given rise to a number of very valid complaints.

A lack of preparation of the logistical base results in other negative consequences. In connection with supply exceeding demand, during the autumn months the organizations of consumer cooperation, in defiance of the law, began dictating the prices for the livestock procured from the population. Unfortunately, other serious violations are also being tolerated. The prices for meat at stores of gorkooptorg /city cooperative trade organization/ are often higher than those in the bureau for trade services on the kolkhoz market. And indeed cooperation must promote a reduction in the market prices and not raise them in the interest of realizing an unjustifiably high profit, which at times exceeds the planned profit to a considerable degree. Concern must be displayed for the advantages to be realized by the population and not just one's own advantages.

One other fact is rather typical. Almost no use is being made of the incentive fund for increasing the production and purchases of agricultural products, formed in cooperative organizations for the purpose of motivating the suppliers. At the present time, the funds remaining in it amount to more than one half million rubles. And these funds are being used to issue bonuses to workers who are not covered by this decree.

Such crude violations of the law have become possible as a result of neglect in the work being performed in a number of local soviets. For it is these soviets that have been assigned responsibility for systematically exercising control over observance of the rules for trade and existing prices, timeliness in the shipping of food and industrial goods to the trade network and also the operations of stores, dining halls, tearooms and markets. The soviet organs in the oblast are also obligated to exercise control over the work of procurement organizations in procuring surplus agricultural products and the operations of consumer cooperation enterprises in the processing and sale of agricultural products and raw materials. They do not have the right to condone the shortcomings in this sphere.

The purchasing of livestock and poultry from the population by kolkhozes and sovkhozes, on the basis of agreements, is considerably more humble than it should be in Kuybyshev Oblast. It is being carried out most successfully in Neftegorskiy Rayon. In 1983 the kolkhozes and sovkhozes purchased 358 tons of meat in live weight and 646 tons of milk from the population here based upon agreements, with these same amounts being sold in fulfillment of the state procurement plans. In 1984 the number of cattle purchased was greater than twofold and amounted to 20 percent of the overall volume of such procurements. In other rayons throughout the oblast, the proportion of livestock purchased from citizens by kolkhozes and sovkhozes in 1983 amounted to only 5 percent of the overall volume of this product sold by the population.

Thus the right extended to kolkhozes and sovkhozes allowing them to purchase livestock and poultry from citizens on the basis of agreements is by no means being used sufficiently.

Moreover, according to a statement by the deputy chief of the Agricultural Administration of the Executive Committee of the Kuybyshev Oblast Council V.I. Malyshev, the oblast's kolkhozes and sovkhozes are generally forbidden to purchase young cattle stock that have been prepared for sale from the private plots. Only the acquisition of light weight cattle for further maturing is authorized. Thus the kolkhozes and sovkhozes have been placed under conditions which lower considerably the economic interest of the farm leaders and specialists in increasing the production and purchases of livestock and milk in the private sector.

And the result is as follows: in recent years, a decrease has taken place in livestock purchases from the population by kolkhozes and sovkhozes. In Krasnoarmeyskiy Rayon, for example, such purchases declined by twofold. At the same time, some farms here are not fulfilling their state plans for livestock and poultry purchases.

When organizing purchases, use is still not being made of the standard agreements approved by the union ministries for agriculture, procurements and finances and the USSR CSA. Instead of these standard agreements, use is being made in the majority of instances of agreements of an arbitrary nature, in which the mutual obligations of the parties involved are not expressed.

What has been the result of this? The local branches of USSR Gosbank have refused to extend short-term credit to kolkhozes and sovkhozes for the maintenance of timely accounts with kolkhoz workers, manual and office workers and other citizens. As a result, the citizens deliver the products and the accounting is carried out at a later time. This is nothing more than a crude violation of the established rules. Its extent is borne out by the fact that in Krasnoarmeyskiy Rayon alone, prior to the end of last year, the indebtedness of kolkhozes and sovkhozes for livestock purchased from citizens amounted to 406,000 rubles.

The rayon branches of Gosbank usually justify such a position by maintaining that there is a shortage of limits for short-term loans for these purposes. Such reasoning is completely incompatible with the existing rules.

The facts indicate that many citizens sell meat and meat products at kolkhoz markets through trade service bureaus. This releases kolkhoz members and manual and office workers of sovkhozes from having to expend additional amounts of time and from other concerns associated with the marketing of surplus agricultural products. In Kuybyshev, for example, approximately 40 percent of the meat sold by the population at markets was sold with the aid of such bureaus.

But this figure could be considerably greater if the municipal executive committee and the trade service bureaus themselves took into account, in a timely manner, the changing situation and prepared better for it. And meanwhile the municipal trade service bureau is unable to accept from the oblast's population the entire volume of meat offered for sale owing to a number of reasons: the capacities of refrigeration facilities are increasing very slowly, there is a shortage of trade positions and the staff of salesmen is inadequate. The purchasers are forced to stand on lines for long periods of time. A similar situation prevails at another large industrial center in the oblast -- Tolyatti.

There is still another important source for improving the supply of livestock husbandry products -- the purchasing of livestock from the population by enterprises of the RSFSR Minmyasomolprom /Ministry of the Meat and Dairy Industry/.

At the present time, in a large number of oblasts, krays and autonomous republics of the RSFSR, including Kuybyshev Oblast, the functions concerned with the procurement of livestock and poultry, which earlier belonged to Skotoprom trusts and associations of the RSFSR Minsel'khoz /Ministry of Agriculture/ system have been transferred over to enterprises of the RSFSR Minmyasomolprom. The RSFSR Ministry of Agriculture has turned over to it, in the prescribed manner, the respective wage funds, maximum appropriations, the appropriate number of workers from the procurement and administrative staff and others. However, a check has revealed that enterprises of the oblast's meat industry have withdrawn from purchasing livestock and poultry from the population as a result of the fact that tasks were not established for them in this regard. Nor did they create a proper logistical base. During those periods when maximum numbers of livestock are being received from all categories of farms, the meat combines and refrigeration units are under a great strain as they carry out the processing and storage of the products.

At the same time, effective measures are not being undertaken throughout the oblast in connection with the construction of new meat combines and refrigeration units. The planning and estimates documentation for a sixth meat combine, the preparation of which involved an expenditure of approximately 200,000 rubles, has become obsolete and has been written off. The plan for the large Povolzhskoye Hog Complex called for a slaughtering house and yet this facility has still not been built.

The capacities of dairy industry enterprises are inadequate. During the period of so-called "maximum milk deliveries," they are unable to cope with the acceptance and processing of all milk being received from the farms. In such instances the dairy plants receive assistance from kolkhozes and sovkhozes, which partially process the milk on their farms. But this nonetheless does not fully solve the problem.

Everything points to the fact that the Kuybyshev Oblast Executive Committee must undertake additional measures aimed at strengthening the logistical base of the acceptance-procurement points, construction, the modernization and expansion of enterprises for the processing and storage of agricultural products and ensuring that they are supplied with the necessary equipment, packaging materials and other resources. A network of acceptance-procurement points must be created which will ensure the timely acceptance of products from the population. A great amount of attention must be given to expanding and strengthening the logistical base of the kolkhoz markets.

It bears mentioning that the workers attached to the oblast's agricultural organs are still only weakly applying themselves to the problems concerned with developing the private plots of citizens. A check has revealed that a comprehensive analysis of the status of affairs with regard to the production and purchases of agricultural products from the population is not being carried out. The problems, trends and bottlenecks in the development of the private sector are not being revealed and efficient and completely sound recommendations for improving the economic interrelationships of the public and private farms are not being prepared. Within the oblast and rayon agricultural organs, specific persons have not been assigned for carrying out and summarizing this work.

The specialists of agricultural organs, kolkhozes and sovkhozes are only weakly mastering the normative documents concerned with the production and purchases of agricultural products from the private plots of citizens. Incidents are occurring involving violations of the principles of economic interrelationships between the public and private farms, as set forth in the standard agreements, and direct violations of the law are being tolerated.

It is hoped that proper conclusions will be drawn from all of this in Kuybyshev Oblast. Indeed, the task is simply not one of appearing somewhat better today than yesterday. This is not enough under the new conditions. The maximum possible results must be realized. And life reveals that the production of meat products among the rural population is increasing noticeably. Thus everything that the population is capable of offering today must be purchased in an efficient manner and without delay and further growth in this progressive trend must be promoted in every possible way. And this is dependent to a large degree upon business-like efficiency and a high level of organization in the work being performed by the soviet organs.

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AGRO-ECONOMICS AND ORGANIZATION

MESYATS ON NEED FOR QUALIFIED TECHNICAL SPECIALISTS

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[Article by USSR Minister of Agriculture V. Mesyats under the heading "APK (Agro-industrial Complex) - Personnel - Food Program Implementation": "Role of Personnel in Implementing Technical Policy"]

[Text] As we know, the primary task of the present stage of communist development is to intensify the country's economy in every way possible on a basis of significant acceleration of scientific-technical progres, of fundamental improvement in the forms and methods of socialist management. The April (1985) CPSU Central Committee Plenum convincingly confirmed once again the immutability of the party policy of effecting a decisive shift in the national economy to the tracks of intensive development, the policy of attaining the highest possible social labor productivity.

All this applies in full to agriculture as well. The problems of further intensifying it, strengthening the material-technical base, and transforming the agroindustrial complex into a highly developed sector of the socialist economy are constantly the center of party and government attention. Practical implementation of the economic, social and organizational measures outlined by the Food Program has yielded tangible results. Agricultural gross output was increased by more than 22 billion rubles during 1983-1984 as compared with the first two years of the 11th Five-Year Plan. Labor productivity rose 10 percent.

Positive changes in stockraising have also been noted. Total state purchases of milk rose by 16.1 million tons during 1983-1984 as compared with the preceding two years; purchases of livestock and poultry rose by 3.6 million tons, and of eggs, by 6.1 billion.

The kolkhoz and sovkhoz economy is being strengthened. The social restructuring of the countryside is proceeding in a planned manner.

In a word, there have been positive advances in the agrarian sector. However, the planned rates of growth in agricultural production have still not been ensured in a number of rayons and oblasts, which has had a negative impact on meeting the assignments of the country's Food Program and on meeting the rapidly growing requirements of the workers for high-quality food products.

The reasons for this situation are ambiguous. But we must first of all recognize that we still have quite a few kolkhozes and sovkhozes on which by no means all the production potential created in the countryside has been fully activated, on which scientifically substantiated crop cultivation and stockraising systems are being introduced slowly, on which land, equipment, mineral fertilizers and other material-technical resources are being used inefficiently and with a poor return. As was noted at the April CPSU Central Committee Plenum, implementation of the Food Program must be intensified, personnel responsibility for work entrusted to them must be increased, and we must do everything we can to gratify the country with good results.

Governed by party demands, the USSR Ministry of Agriculture, jointly with party, soviet and agricultural agencies, is taking decisive steps aimed at increasing the administrative effectiveness and mutual responsibility of all APK partners for end work results, at strengthening state, labor and technological discipline at all levels, at developing in each worker such currently necessary personal qualities as independence, initiative, and enterprising, business-like attitudes.

Particular attention is being paid to enlisting personnel in the highly effective use of energy and other resources, in carrying out a whole complex of technical policy problems in agriculture.

In this connection, rural areas are faced, in the course of implementing the Food Program, with resolving the following urgent tasks: completing the comprehensive mechanization of crop cultivation and stockraising and switching over to automating agricultural production processes; providing the technical base for the zonal farming systems and the industrial and intensive technologies which have been developed; improving repair quality, technical servicing and storage of the machinery-tractor fleet; strengthening the engineering services on kolkhozes, sovkhozes and agroindustrial associations; constantly fighting to save fuel and lubricants; introducing into production wherever possible progressive forms of labor organization and wages on collective-contract and cost-accounting principles and perfecting, on that basis, the material and moral incentives for end work results; switching over to contractual relations between farms and the enterprises and organizations servicing them. Coping successfully with this multilevel work will be impossible without the creation of a corresponding personnel potential.

The country has an effective system of training and improving the skills of specialists and workers in the most common occupations; it includes 104 agricultural VUZ's and 16 VUZ branches, 603 tekhnikums, a broad network of study courses, and also VDNKh [All-Union Exhibit of Economic Achievements] classes. In 1984, the VUZ internal [non-correspondence] departments alone graduated 53,800 specialists for rural areas; tekhnikums graduated 112,000. Some 679,000 machine operators and 223,000 livestock specialists were trained in courses and at rural vocational-technical schools.

Agriculture now employs upwards of two million specialists with higher or secondary special educations, about five million machine operators and more than five million livestock specialists. A majority of these are highly skilled workers capable of solving competently and at the level of contemporary production requirements the tasks set them, including pressing problems of technical policy.

A special role in its implementation belongs to engineering-technical personnel in agricultural production. About 400,000 specialists in agricultural mechanization and electrification currently work on kolkhozes and sovkhozes. Each sovkhoz accounts for seven engineers and technicians, in all specialties, and each kolkhoz accounts for five, on average. And practically all chief-engineer positions are held by people with higher or secondary special educations. The percentage of specialists holding diplomas among shop chiefs, machine operators and brigade leaders has been increased significantly.

Agricultural VUZ admissions in the specialties of agricultural mechanization and electrification have been increased in the 11th Five-Year Plan for the purpose of strengthening rural engineering services. During 1981-1985, some 93,000 mechanical engineers and 25,500 electrical engineers will be trained at internal and correspondence VUZ's. Moreover, agricultural tekhnikums will graduate about 223,000 mechanical engineering technicians and electrical engineering technicians.

Life and experience demonstrate that today, the end results of agricultural production are directly dependent on the provision of farms with personnel, and especially with ones in the technical specialties. In places where a proper repair and servicing base has been created and provided with personnel, there is an obvious and steady trend towards growth in the productivity of the machinery-tractor fleet, towards an increase in the service life and output of tractors, automobiles and other machinery, with a reduction in fuel and oil expenditures; in those places, equipment is generally used in an organized, competent manner and the performance of all types of mechanized jobs is invariably of high quality, which means better farm activity results as well.

On Kamalenskiy Sovkhoz in Alma-Ata Oblast, Kazakh SSR, high harvests of agricultural crops are obtained year in and year out and state plans for the production and sale of crop cultivation and stockraising output are consistently met. Analysis shows that one of the most important components in the successes achieved has been a caring attitude towards equipment and its highly productive operation. The farm has built a central repair shop, vehicle garage, technical service stations and fuel storage facility; there is a well-equipped machinery yard, and a special field repair and maintenance service has been created. All this permits the prompt, proper preparation of all equipment for field work and maintaining it in good repair while in use. The engineering service is headed by the chief engineer of the sovkhoz, A. A. Valter.

The work of chief engineers V. A. Zyuzyukov (Put k kommunizmu Kolkhoz, Voronezh Oblast), V. M. Parshin (Yekimovskiy Sovkhoz, Ryazan Oblast), A. M. Pachevskiy (Rossiya Kolkhoz, Vinnitsa Oblast), I. A. Volyntsev (40 let Oktyabrya Kolkhoz, Brest Oblast) and M. I. Tatus (Rakhva Vyyt Kolkhoz, Estonian SSR) is an example of a creative, skilled approach to practical embodiment of this technical policy. Much work is being done in the Tatar ASSR, Moscow and many other oblasts and republics to develop and strengthen the engineering-technical services of kolkhozes and sovkhozes.

At the same time, there are still many kolkhozes and sovkhozes on which operation of the machinery-tractor fleet is poorly organized, agrotechnical schedules for conducting field work are not followed, and technology deviations are permitted. On them, field crop yields and livestock farm productivity generally rise slowly, as does output.

Scientific-technical progress in agricultural production has caused and is causing quantitative and qualitative changes in worker composition and is exerting an enormous influence on the very nature of the machine operator's labor, which is becoming increasingly complex and multifaceted. Recently, the number of highly skilled tractor operators has increased in rural areas (62.7 percent of the total number now are rated Class I or Class II), as has the number of vehicle drivers and workers in other machine-operator occupations. This is a natural process, reflecting objective production requirements, and it will be developed further. In parallel with this, the number of workers not having a specific occupation is being reduced.

At the same time, production requirements for machine operators are far from being fully met in individual regions of the country. This shortage can currently be made up primarily by improving their skills and experience. Practice has convincingly demonstrated that output can be increased 25-30 percent, working time can be used more efficiently and equipment can be operated more effectively just by improving the skill ratings of machine operators from Class III to Class I.

Steady machine operator employment throughout the year is another important factor in reducing the need for manpower. Thus, the annual working time of tractor operators in a majority of the country's zones is distributed as follows: mechanized work -- 60-65 percent, machinery repair and technical service -- about 15 percent, and the rest of the time in construction and other production sectors. It is therefore very important to have on the kolkhoz or sovkhoz an annual calendar schedule plan for using each machine operator, one which determines his share of participation in carrying out the total work volume. On the leading farms, manpower requirements have been reduced 12-15 percent just by doing this.

And there is one more circumstance of considerable importance which needs to be taken into account when implementing technical policy tasks. That is changing over to the extensive introduction of industrial and intensive technologies into production, the programming of harvests.

The scope of progressive technology application is constantly expanding. Last year, 8 million hectares were grown using them; this will expand to 27 million hectares this year. And in the future, all agricultural production will be based on industrial and intensive technologies. Harvest programming is being similarly expanded on irrigated and drained land, enabling us to obtain the highest possible yield from the use of fertilizers, water and other resources.

Progressive methods of growing consistently high agricultural crop yields do not tolerate a superficial, unskilled, formal approach. When mastering them, we require the strictest possible observance of technological discipline and the truly creative labor of each machine operator. Purely occupational skill is no longer adequate. The machine operator must master related and second occupations, have a solid knowledge of the principles of agricultural technology and agricultural chemistry, and be able to skillfully perform any complex technological operation.

Our leading production workers and innovators are the true conductors of technical progress in rural areas. Their daily labor is characterized by a tireless

activeness in their search for innovation, by the ability to overcome difficulty, by the ability to knit together a collective, to gather thousands of followers in their wake, to be good, demanding tutors of young people, inculcating them with a love for the land and for the cause. The whole country knows the names of honored machine operators such as V. M. Cherdyntsev, twice Hero of Socialist Labor and link leader on Rassvet Kolkhoz in Orenburg Oblast, of N. V. Pereverzeva, Heroine of Socialist Labor and link leader on Put Lenina Kolkhoz in Rostov Oblast, of A. A. Krivich, Hero of Socialist Labor and machine operator on XXII syezda KPSS Kolkhoz in Krasnodar Kray, of N. P. Geraskevich, State Prize winner and tractor operator on Altayskiy Sovkhoz in Altay Kray, and of many, many others. It is the task of agricultural agencies and of rayon and oblast agroindustrial associations to do everything they can to ensure that the experience of leaders in the socialist competition is quickly studied and disseminated to all republics, krays and oblasts, that it be made accessible to each laborer.

The role of stockraising personnel is equally important. Large complexes in poultry raising, meat and milk stockraising, how growing and sheep growing have been built and are operating efficiently as a result of successful implementation of the policy of specializing and concentrating the production of stockraising output here. In 1984, the country as a whole had 3,690 stockraising complexes, 589 of which were for raising hogs (3.1 million, capacity), 2,432 for raising dairy cattle (1.9 million, capacity) and 247 for raising heifers (485,000, capacity).

These enterprises ensure good work results (much higher than on ordinary farms), higher levels of labor productivity, and lower output net costs and feed expenditures. Such modern stockraising farms and feed lots are almost fully mechanized. Automation, microprocessor equipment and computers are being successfully introduced at many of them. On them, the labor of the stockraisers is actually industrial in nature, making the highest demands on worker skills and requiring the stictest possible observance of technological discipline because, under industrial, flow-line conditions, even the slightest deviation from the technology, from the prescribed livestock feeding and maintenance parameters, becomes a large output shortfall.

Practically all the complexes are provided with labor resources in the needed technical occupations. However, the level of work with stockraising personnel as a whole thus far has lagged behind the demands of the times, and it is being raised slower than in crop cultivation. Of the 5.3 million people employed in the branch, only 803,000 workers hold the skill rating of "Class I or II Master of Stockraising," which is only 15 percent of the total number.

There are now 17 VUZ's and 48 tekhnikums, SPTU [special vocational-technical school] and schools of leading experience which are specialized to train workers for stockraising farms and feedlots, and at a level taking into consideration the features of industrial production of agricultural output. Academic institutions are graduating specialists in new occupations such as zoological engineers, stock care and feeding operators, automation specialists, equipment troubleshooters, and many others. The Ministry of Agriculture has oriented the whole stockraising personnel training system so that the branch will be provided in the very near future with sufficient workers in all the needed specialties,

workers capable of actualizing the primary task of the rural shock-work front, that of obtaining more output of better quality, with efficient expenditures of feed, labor and funds.

Many questions of shaping and using the technical base of production in collectives working on brigade contract principles are being resolved very successfully. Recently, quite a bit has been done to increase the stimulus importance of progressive forms of labor organization and wages. Upwards of 150,000 contract collectives now operate in rural areas. About 40 percent of all the plowed land in plant growing has been assigned to them. They cultivate agricultural crops on an area of more than 80 million hectares. In stockraising, 80,000 subdivisions work on contract principles, serving 36 percent of the sheep, 13 percent of the hogs and more than 10 percent of the dairy herd.

The advantages of the collective contract are quite obvious. And they consist not only in the fact that the labor collectives obtain 20-30 percent more output, and output of better quality, than ordinary brigades and links, and with lower expenditures of labor and funds, but also in that people actively participate in production management. Creative activeness is fostered, labor and technological discipline are followed better, working time is used more effectively, and particularly importantly, the contract fosters high personal and collective responsibility for end work results and encourages skill improvement and the mastering of related occupations and economic skills, which is essential now for proper management of the land.

The existing personnel training system is quite flexible and effective, and it functions in conformity with production demands. Thus, the active processes of agricultural specialization and concentration have resulted in the training of skilled personnel in such specialties as "Agricultural Production Automation," "Water Management Economy and Organization," "Agricultural Construction" and "Economic Cybernetics in Agriculture." We have begun training specialists in feed production, in seed selection and seed growing, in sealed-bed vegetable growing, in the technology of storing and initial-processing fruit and vegetables, and for using industrial methods of producing stockraising output, as discussed above. Since 1976, we have been training broadly specialized agricultural production economist-organizers instead of "agronomist-economists."

The system for training average-skill personnel has also been improved. Agriculture tekhnikums are currently graduating specialists for work in stockraising complexes, agroindustrial enterprises and associations, with a narrower occupational orientation. For example, "livestock expert" students can now specialize in industrial technologies for producing milk, pork, beef and lamb, and "veterinary science" students can specialize in veterinary services to stockraising complexes, in the reproduction and artificial insemination of agricultural animals.

However, certain shortcomings in the system for providing production with personnel have been revealed in the course of implementing the Food Program. Today, it is no longer sufficient for either the supervisor or the ordinary worker to have just occupational skills and experience in order to successfully cope with his duties. The modern specialist must first of all be a politically mature person possessing a broad world view and economic type of thinking, a

strong sense of responsibility for the work entrusted to him, for his own work sector and for production results as a whole: an innovator in the very broadest sense of the work.

The October (1984) CPSU Central Committee Plenum put forward very serious personnel training demands, and understandably so, since the effectiveness with which reclaimed land and high yields from each improved hectare depend wholly on their level of skill.

In the interests of successfully implementing the Long Range Reclamation Program, the USSR Ministry of Agriculture anticipates retraining farm leaders, specialists, operators of watering machinery, pump plant machine operators and other personnel in the most common occupations in courses, departments and skill-improvement schools attached to higher and secondary academic institutions in order to fully meet the demand for average- and higher-skill reclamation personnel in each oblast, kray and republic in the very near future.

The new approach to personnel training and the greater opportunities for implementing a modern personnel policy in rural areas are opened up by the "Basic Directions of General-Education and Vocational School Reform." The USSR Ministry of Agriculture and local agricultural agencies are creating the conditions necessary for labor training of pupils in departmental enterprises and organizations. Base farms are assigned to each rural school, production training specialties are determined, and specialists are allocated to conduct exercises in particular specialties. Training in the occupations of machine operator, stockraiser and others has been instituted in practically all rural schools; vocational guidance offices and workshops have been created in the schools.

Student production brigades have become an important form of labor development and training. There are 16,000 of them in the Russian Federation, upwards of 8,000 in the Ukraine, 1,700 in Belorussia and 2,700 in Kazakhstan. Interschool study-production combines have proven themselves. The level of work in rural vocational-technical schools has been raised significantly. All these steps are enabling us to provide agricultural production promptly with reliable young replacements.

Scientific-technical progress increases the role of the personal factor in production development, making greater demands on leaders, specialists and workers, and on the sum of their skills and experience. As we know, the CPSU Central Committee and USSR Council of Ministers have adopted a decree "On Further Improving Skill Improvement for Supervisory Personnel and Specialists in the Agroindustrial Complex System," which anticipates that specific steps will be taken aimed at improving personnel training and ensuring their active participation in implementing the Food Program. This decree set precise directions for continued personnel work in the agroindustrial complex system.

In speaking of certain personnel problems of technical progress, we must not fail to touch on one problem delaying the introduction of its achievements into agricultural production. The reference is to balancing the planned production volumes with the material-technical resources being allocated for these purposes.

It is, after all, no secret that we have been slow in solving the urgent problems of comprehensively mechanizing certain branches, especially with regard to the

delivery to the countryside of multiple-unit machinery, machinery for soil protection technologies, and the effective use of mineral and organic fertilizers and chemical means of plant protection. Farm requirements for liming materials, pesticides and protein-vitamin feed additives are being poorly met, which has a negative effect on the overall use of the available resources, on field crop yields and livestock productiveness. The shortage of specialized transport, of reliable technological equipment for stockraising farms, of synthetic film, of certain veterinary compounds, as well as of equipment for storage facilities and processing enterprises, becomes ever-more perceptible with each passing year.

Thus, the scope of introducing industrial technology for cultivating grain corn is limited by the shortage of KSKU-6 corn-harvesting combines and attachments for PPK-4 grain-harvesting combines. Kolkhozes and sovkhozes of the Russian Federation, where upwards of 80 percent of the irrigated land uses sprinkling systems, cannot do this work fully or properly due to the inadequate availability of irrigation equipment. During 1981-1984 alone, republic farms had shortfalls of 726 Fregatov, about 2,600 Volzhanok, 4,800 DDN-70 and other sprinkler equipment.

Labor-saving industrial technology for milk production developed by the agricultural scientific research institutes has been shown to be highly effective. However, its extensive application in stockraising has been hampered by the lack of automatic OSP-F-26 coupler-uncouplers and the poor reliability of the automatic units in milking machines. Rural areas are being supplied extremely slowly with KORK-15 equipment packages for feed preparation plants, which is reflected negatively in the rates of feed production development and specialization.

Rural laborers are counting on the USSR Ministry of Tractor and Agricultural Machinebuilding, USSR Ministry of Machinebuilding for Stockraising and Feed Production, USSR Ministry for Mineral Fertilizer Production, USSR Ministry of Chemical Industry, Main Administration of Microbiological Industry attached to the USSR Council of Ministers, and other ministries and departments to improve work on comprehensively providing the material-technical base of agricultural production. This is demanded by the interests of carrying out the Food Program.

We also need to single out the important question of securing specialists and workers in the most common occupations on kolkhozes and sovkhozes. This is probably one of the most important indicators of VUZ and tekhnikum activity, of the effectiveness of all personnel work.

Experience has shown that the extent to which personnel are secured on kolkhozes and sovkhozes is higher among those who have come from rural areas, which must be taken into account when filling agricultural VUZ's and other academic institutions. Sending people for study with farms paying stipends and targeted admissions should be considered the most successful forms of such work. In 1984, 33,800 farm-stipend people, or 53.6 percent of the total, were admitted by the agricultural VUZ's.

A number of VUZ's do joint organizational and vocational-guidance work with the agricultural agencies, kolkhozes and sovkhozes on targeted admissions of rural young people to the first grade level [course]. In order to supply Nonchernozem

Zone kolkhozes and sovkhozes with specialists and to assign them to farms as quickly as possible, we set up in 1984, for the first time, targeted admissions of more than 600 local rural young people to agricultural VUZ's of the Northern Caucasus and Volga Area and their subsequent assignment to work on Nonchernozem farms.

As an integral part of party personnel policy, personnel are also consistently secured in rural areas through the creation of favorable working, living and recreation conditions for workers in agriculture, that is, through the creation of conditions not inferior in any way to those in urban areas. In accordance with the resolutions of the May (1982) CPSU Central Committee Plenum, salaries to kolkhoz and sovkhoz specialists have been significantly raised and a number of benefits aimed at improving their housing and personal services have been established.

Along with production construction, housing, cultural and personal-services construction in rural areas is underway on a broad scale. During 1981-1984 alone, 132 million square meters of well-equipped housing was released for occupancy in rural areas, providing an opportunity to improve housing conditions for more than 10 million people. More schools, children's preschool institutions, public health and cultural facilities are being built. Personal services to the rural populace are being improved and the material and cultural standards of living for rural laborers are rising.

Big changes are occurring on farms and complexes, at brigade mills and workshops. All production sectors have already been equipped with Red Corners, study classrooms, recreation and sanitation rooms, medical facilities and food kiosks in many rayons and oblasts. In a word, everything possible is being done to ensure that rural labor is organized in the best way possible, to provide people with the job of creativity, to make rural labor a genuinely spiritual requirement, to stimulate the attainment of good results.

It is therefore for good reason that the outflux of rural population to the cities has started to decrease in recent years. And, particularly gratifying, young people and school graduates are more and more often staying to work on their native kolkhozes and sovkhozes.

Rural cadres are a decisive factor in carrying out the country's Food Program. The present and the future of agriculture are in their hands. And there is no more important task than that of making these hands more skillful, more experienced. Competent, highly skilled, educated people capable of working effectively in the name of further improving the well-being of the Soviet people, of strengthening the defense capability and flowering of our homeland, must stand at the forward frontiers of the struggle to implement our plans.

11052
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AGRO-ECONOMICS AND ORGANIZATION

APK COMMISSION DISCUSSES FRUIT, VEGETABLE FARMING

PM171319 Moscow SELSKAYA ZHIZN in Russina 12 Jul 85 p 3

[TASS report: "Agroindustrial Complex Commission Session"]

[Text] A routine session of the USSR Council of Ministers Presidium Commission on Questions of the Agroindustrial Complex has heard reports by N.M. Zaychenko, USSR first deputy minister of fruits and vegetable farming, and A.G. Yashin, first deputy chairman of the Tsentrosoyuz Board, on measures to ensure purchases of fruit and vegetable products and their delivery to the all-union fund.

It was pointed out that, in addition to a certain improvement in the organization of procurements of potatoes, tomatoes, and other vegetables, trading organizations' requests for these products are still not being satisfied in full in a number of places, and uninterrupted trade in them is not being ensured. The USSR Ministry of Fruits and Vegetable Farming, the USSR Ministry of Trade, and the Tsentrosoyuz do not influence suppliers of fruit and vegetable products actively enough with a view to accelerating their delivery to cities and industrial centers. Direct ties between procurement and trading organizations and kolkhozes and sovkhozes are being expanded only slowly.

Purchases of fruit and vegetable products are being made below last year's level in agroindustrial associations in the Ukrainian SSR, the Georgian SSR, the Azerbaijan SSR, the Moldavian SSR, the Armenian SSR, and the Turkmen SSR.

The appropriate fruits and vegetable farming and trade organs have been instructed to ensure a fundamental improvement everywhere in the organization of sales of fruit and vegetable products to the population. It is planned to considerably increase sales of fresh fruits, grapes, berries, and also tomatoes, cauliflowers, vegetable marrows, sweet peppers, aubergines, cymlings, greens, and other vegetable crops.

Union republic councils of ministers are instructed to establish for 1985 additional targets for sales of fruits, berries, and fruit and berry juices to the population and for the production and delivery to the trade system of jams, jellies, and other food products using the raw resources released in the wine-making industry.

Attention was drawn to the need to stop instances of substandard fruit and vegetable products being dispatched to consumers. The guilty parties must be called strictly to account.

In order to prevent losses and spoilage of fruit and vegetable products grown on kolkhozes and sovkhozes and by the public, agroindustrial associations are recommended to make more extensive use of potential for selling these products on a contractual basis through the public catering and trade network of industrial enterprises, construction sites, and organizations on terms of their purchase directly at the places of production and their gathering and transportation by means of the consumers' manpower and transport.

The commission approved the activity of the Volgograd and Donetsk Oblast agroindustrial associations in enhancing the efficiency of the utilization of irrigated land. They have taken effective measures to improve the supply of mineral fertilizers, equipment, and other material and technical means to kolkhozes and sovkhozes and to create stable collectives on farms to work on irrigated land. All irrigated land has been assigned to permanent teams and links. The programmed cultivation of harvests has begun to be used on a wider scale in these oblasts.

The commission evaluated positively the initiative of Donetsk Oblast's agroindustrial associations which are carrying out persistent work on the broad utilization of local drainage water for irrigation purposes. Approximately 400 pounds have been constructed in the oblast in a short time, and more than 100,000 hectares of agricultural land is irrigated with their help. These and other measures have made it possible to increase vegetable production to 600,000 metric tons and to satisfy in full the requirements of the population of cities and workers settlements for these products. More than 40 percent of the coarse and suculent feed is grown on irrigated land. Donetsk Oblast's experience in utilizing local drainage water is recommended for extensive use in other regions of the country.

The councils of the Volgograd and Donetsk Oblast agroindustrial associations have been set the task of ensuring in 1985 that the planned yield of agricultural crops is obtained from reclaimed land.

The commission sharply condemned instances of violations in the formation and utilization of centralized funds which have occurred in certain agroindustrial associations. The appropriate organs are entrusted with stepping up monitoring of their rational utilization, with a view to channeling these funds' assets primarily into the implementation of measures connected with strengthening the material and technical base of enterprises, accelerating scientific and technical progress, increasing production of foodstuffs, improving their quality, and also improving social and domestic living conditions in the countryside.

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AGRO-ECONOMICS AND ORGANIZATION

PASKAR ON APPLICATION OF TECHNOLOGY IN APK SYSTEM

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 25 Jun 85 p 2

[Article by P. Paskar, first deputy chairman of USSR Gosplan: "The Main Key to Intensification: Accelerating Scientific-Technical Progress Within the Branches of the APK [Agro-Industrial Complex]"]

[Text] Today the operation of the country's agro-industrial complex (APK) is closely related to many branches of the national economy. According to the data of the Main Computer Center of USSR Gosplan, about 32 percent of the products of heavy industry, 45 percent of freight shipments utilizing the means of transportation and 38 percent of building operations are related to satisfying the needs of the population for food items produced by the agro-industrial complex. During the current five-year plan in this country over one-third of all building of facilities earmarked for production purposes and carried out using state capital investments was concentrated in the APK.

Is it necessary to prove that the transition of production to an intensive path of development is becoming immensely significant here? The path to be taken in order to make this transition was clearly defined at the April 1985 Plenum of the CPSU Central Committee. As the main strategic factor in intensifying the national economy and in making better use of accumulated potential, the party is placing priority emphasis on the cardinal acceleration of scientific-technical progress.

Essentially, the USSR Food Program foresees the completion by 1990 of comprehensive mechanization of agricultural production and the reequipping of food branches of industry on a new technological basis. Moreover, machine-building ministries have been given the goal not only of increasing the production of machines and equipment but also of significantly raising their level of quality, i.e., of increasing dependability and productivity, of increasing length of service, of decreasing materials-intensiveness and of improving fuel economy and other characteristics. Within the food branches of industry there should be a more widespread introduction of thorough processing of raw materials, a decrease in losses of these raw materials, an improvement in quality of foods and an expansion of their assortment.

The measures taken by the party and government following the May 1982 Plenum of the CPSU Central Committee to accelerate the technical reequipping of APK

branches are bringing noticeable results. Thus, in the course of 4 years of the five-year plan Minselkhozmash [Ministry of Agricultural Machine Building] developed over 260 and assimilated the production of 108 new types of machines and equipment. The technical level of most of these meets modern requirements. During the current five-year plan over 70 types of technical equipment with antiquated designs will be removed from production.

In machine-building branches many collectives in the vanguard of technical progress are feeling the demands of the times acutely. The soil-cultivation technology developed by the design buro for cultivators and trailers by Krasnyy Aksay Plant has proven itself well. The collective headed by general designer Yu. Mukhin strives to provide the farmer with high-quality equipment. Modern equipment is being produced for enterprises of the food industry by the collective of the Kapsukas Association of Automatic Food Machines, which is headed by I. Sheshkyavichus, by the associations of Melitopolprodmash [Melitopol Association of Food Machinery] (general director A. Pavlyuchenko) and by several others.

Certain positive changes occurred recently as concerns strengthening the technical base of the meat, dairy, food and other branches of the processing industry. This enabled us to carry out 1983-1984 plan goals relating to the production of meat, animal fat and cheeses, to selling meat and dairy products and decreasing their cost and to increasing the output of products made from defatted milk, buttermilk and whey products and sausages and semi-processed meat products made with the use of protein components.

Yet the pace of work involving technically modernizing the branches of the agro-industrial complex still does not achieve fulfillment of large-scale goals as foreseen by the Food Program.

Agriculture does not have at its disposal a sufficient amount of equipment for introducing scientifically-based, progressive and economic production output technologies or technologies that will facilitate the fulfillment of field work in the optimal agrotechnical time everywhere. In kolkhozes and sovkhozes hundreds of production operations are still performed manually and over half of the total number of workers per enterprise are involved in these.

All of this results in a significant underproduction of grain, potatoes, vegetables, feeds and other farm products and in a drop in quality.

Well-founded complaints concerning the quality as well as quantity of equipment manufactured by enterprises of Minzhivmash [Ministry of Machine Building for Agriculture] are being made today by workers in livestock-raising--this very complex and labor-intensive branch.

An unsatisfactory situation has developed concerning technical equipping of processing enterprises.

Thus, in the enterprises of the USSR Ministry of the Meat and Dairy Industry a significant portion of fixed industrial-production capital is obsolete and physically worn out. Over one-third of the refrigerators found in meat combines are in need of immediate capital-restoration repairs. The needs of

enterprises within this branch as concerns most types of machines and mechanisms are being met by only 55-60 percent. The level of mechanization of labor processes is growing slowly. In some branches over 40 percent of workers are involved in manual labor.

The ministry of machine building for the light and food industry and consumer goods as well as other machine-building ministries are not fulfilling plan goals related to the development and delivery of highly productive equipment; they have not organized the production of many types of equipment needed to process livestock raw materials within a complete cycle. Among the articles produced by Minlegpishchemash [Ministry of Machine Building for the Light and Food Industries and Consumer Goods] the proportion of machines, mechanisms and apparatuses with obsolete designs is large.

Let us look at least at the line to produce pelmeni [a kind of ravioli] and meat-balls that is manufactured by Cherkassy's Machine Building Plant imeni G. I. Petrovskiy (director V. Kushchenko). The design and quality of this line is such that its real productivity is half of planned productivity and the products produced on it often do not correspond to GOST standards. In addition, a large number of workers is required to service this line.

Poltava's Prodmash Plant (director A. Zatkhey) supplies consumers with a low-productivity line for the production of cutlets.

Workers of fruit and vegetable enterprises are directing serious complaints against machines of the Ritm type, which is manufactured by Odessa Mechanical Plant (director V. Gimborg). This machine is utilized for cutting raw materials, but it leaves a great deal of waste and its cutting elements wear out rapidly.

We can provide many such examples. Of course we cannot acquiesce to this. "It is completely intolerable," said Comrade M. S. Gorbachev at a recent meeting of the CPSU Central Committee dealing with questions of accelerating scientific-technical progress, "to manufacture new technology which is morally obsolete already at the design stage and which is inferior to the best indicators in terms of dependability, work resources and economy."

In April the Politburo of the CPSU Central Committee examined the question of accelerating the development of the material-technical base of processing branches within the agro-industrial complex and pointed out that the tasks set forth by the Food Program and related to the development of capacities for the storage and processing of agricultural products are being carried out slowly and that machine building for the food industry is lagging behind plan goals.

The party's central committee has demanded that the corresponding ministries and departments do everything necessary to expand the building, technical reequipping and renovation of processing enterprises and to fully utilize existing production bases. The goal is to place emphasis on technical reequipping of enterprises and on economizing on resources while at the same time carrying out new building.

USSR Gosplan, together with other interested ministries and departments, is now developing specific measures for 1986-1990 directed at achieving further strengthening of the base for storing and processing agricultural raw materials, at allocating the necessary capital investments and at setting the limits for contract work to fulfill these goals, and at balancing the indicated volume of capital building with real possibilities for equipping the structures being erected with modern technological equipment.

All of this will require significant improvements in work on a local level and the more effective utilization of all allocated material and financial resources.

Planning and economic organs are called upon to do everything possible for the practical implementation of the directives of the CPSU Central Committee concerning the fact that the reequipping of all branches of the national economy must be carried out on the basis of current scientific and technical achievements and of a transition to the most efficient principally-new technological systems.

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AGRO-ECONOMICS AND ORGANIZATION

LETTERS DECRY INADEQUATE SUPPORT FOR PRIVATE PLOTS

Moscow SEL-SKAYA NOV' in Russian No. 5, May 85 p 33

[Letters to the editor and editorial response under the headline: "What to feed? Where to graze?"

[Text] Milk Yields Decline...in the Summertime

Although ours is considered to be a workers' settlement it somehow still seems like a village. The supply of meat, milk and other products is not very well organized. Therefore it is necessary to maintain a subsidiary garden plot.

Unfortunately in our region people concern themselves about the private plots only in words. For many years the segment of the population that maintains cows has not had good pastures and watering places and, naturally, when summer comes, the milk yields drop. This is paradoxical, but it is so.

We have appealed to local, rayon and oblast organs many times, but the problem has not been resolved. I do not believe that it is impossible to help the owners of livestock and to allocate summer pasture areas, all the more so now when such great significance is attached to private plots.

The situation forces one to seek a way out, and hence I am writing to the editor. Perhaps something will turn up with your help.

V. D'yachkov

Mishino, Kurgan Oblast

One Problem, Two Problems...

Dear editor: I would like to share my disappointments and sorrows, and these problems are not mine alone but those of almost all my fellow villagers.

In our sovkhoz imeni Engels a great deal has been done to implement the Food Program. For several years the sovkhoz has occupied first place in the rayon for purchases of milk from the population. To those who provide milk the sovkhoz sells hay, grain by-products and silage.

But what are people who are not able to supply milk to do? Where are they going to obtain grain by-products and mixed feeds? You cannot buy them in the stores. If some mixed feed shows up in the trade network the sovkhoz takes it all for the state-owned livestock.

The young animals constitute a second problem. In our area young calves do not graze. Previously they used to wander in the meadow but then they began to be driven beyond the stream, where winter crops and corn are planted, and of course damage from grazing occurs. The only thing left to do is to keep the calves at home. But what are we supposed to feed them?

It would be nice if the village soviet or service combine would concern itself about the young animals on the private plots, organize their care and allocate space. To date they limit their "attention" to imposing fines on the owners.

In August 1984 we and many other villagers were fined 10 rubles by a decision of the executive committee of the village soviet for damage caused by cattle to the corn (two calves under five months). Damage reports submitted by the sovkhoz served as the basis. We paid the fine. In October on the basis of the same documents we were again punished by order of the sovkhoz, but this time by the management of the sovkhoz. They are depriving us of the hay and silage that is being issued to the workers of the sovkhoz by households.

Is this right? Can one be punished twice for one and the same thing?

And a third problem is the sale of meat. Why should an owner after raising a little bull or hog with such difficulty not have the right to sell it where it is most advantageous? In our sovkhoz, for example, they do not issue documents certified by the veterinarian for the sale of meat in the market but force people to turn the meat in to the state procurement agent or the sovkhoz. For what purpose then do markets exist?

Respectfully, your constant reader

Emiliya Kraus

Peremenovka,
Borodulikhinmskiy Rayon,
Semipalatinsk Oblast

Feed Stores For All!

Dear Editor: In the supplement to your magazine PRIUSADEBNOYE KHOZYAYSTVO (No. 5, 1984) it is written: "Those who are interested in the more general - economic, organizational and social - problems connected with the private plots can read about them in SEL'SKAYA NOV'. And not only read but also

express their points of view and opinions." So: in this letter I wish to express my point of view and my opinion on the question of obtaining feed for livestock held on private plots.

At present I am a pensioner and have been one for more than a year. I was a worker, a miner. I live within the city limits of Pavlograd but on the land of a kolkhoz. Last summer was the second in which I was engaged in preparing coarse feed for the winter. Everything, you can imagine, turned out to be more complicated than it seemed at the outset. No one from the kolkhoz management or from the rayon authorities wanted to show any concern for the few persons who set themselves up with some livestock after retiring from work. In fact quite the contrary. Dozens of examples could be cited in which they, to put it bluntly, tripped you up. You could not buy mixed feed anywhere. Sometimes, but rarely, it shows up in the society of rabbit breeders - of which I am a member. Even there it got more difficult every year.

In the kolkhoz imeni Dzerzhinskiy where I live they charge 30 rubles for one ton of wheat straw, plus 5 rubles for transportation, plus two "bottles" for the tractor driver and the stacker, etc. This at the same time that a ton of coal costs 12 rubles.

I am not going to cite any more examples, and there are plenty, but just say that in Pavlogradskiy Rayon the statutes spoken of in the editorial "Bussiness-like, daily assistance" (same issue of PRIUSADEBNOYE KHOZYAYSTVO) you may consider as not being implemented.

This is my proposal: there should be state feed stores in the city, so that any person who has livestock could buy feed there at any time. In such stores there should be not only various mixed feeds but also feed grain, sunflower seed oilcake, feed beetroot, grass meal or granules, silage, straw and hay. Now that would really be help for the private plots! Then cattle would be fed less baked bread.

N. Khudyayev

Pavlograd,
Dnepropetrovsk Oblast

From the editorial staff. The subject raised for discussion by the authors of the letters is not a new one. In many, very many farms, rayons and even oblasts the acuteness of such questions has been removed. Unfortunately there is no use cherishing the illusion that the facts described simply constitute a misunderstanding or an exception. They are based not just on objective reasons (low grain harvests and excessive plowing of arable land) but also on subjective ones: incorrect views on private plots on the part of some executives who have the authority on the spot "to give or not to give," "to permit or not to permit" and poor organizational work in the farms.

Let us grant that the authors of the letters are also subjective in their evaluations and conclusions. One can assume that in that very Pavlogradskiy Rayon Executive Committee, in the kolkhoz imeni Dzerzhinskiy, in the sovkhoz imeni Engels and in the village council of Mishino examples could be found of concerned care for private plots. But individual examples do not constitute purposeful and consistent help for private plots. Private plots do not need favors or condescension. It is time for everyone to understand that this approach is unprofitable and pernicious. They are an integral component of the agro-industrial complex of the country.

We would like to cite a few excerpts from the decree of the CPSU Central Committee and the USSR Council of Ministers of 8 January 1981, "Additional measures for increasing the production of agricultural products on the private plots of citizens:"

"The CPSU Central Committee and USSR Council of Ministers emphasize that cattle kept on the private plots of citizens within the limits of the standards set by the charters of kolkhozes and by legislation in force are used at the discretion of the owners for satisfying their own needs, sale to consumer cooperative organizations at prices according to contract, sale at markets and to state procurement organizations and also for other needs. In this matter arbitrary administrative actions are impermissible.

"The councils of ministers of union and autonomous republics, kray executive committees, oblast executive committees, rayon executive committees, the USSR Ministry of Agriculture and its local organs, the directors of kolkhozes, sovkhozes and other agricultural enterprises are required to implement additional measures to improve the supply of feed for livestock and poultry held on the private plots of citizens.

"Members of kolkhozes, workers, employees and other citizens who participate conscientiously in social production and pensioners who maintain cattle, sheep and goats on their private plots are to be allotted sectors for cutting hay and grazing stock, if possible on a long-term basis..."

This is the policy that is supposed to be carried out locally. And if at the present time the prevailing conditions somewhere are not completely favorable for farming private plots then they must gradually but steadily be improved, the possibility be found for additional production of feed, concern be given for pastures calculated to serve all of the livestock located in a given area, regardless of whether the livestock belongs to the kolkhoz, sovkhoz, a club worker, a teacher, a sales clerk or a paramedical assistant...

In the final analysis what has been produced and will be produced and will be produced in the yards of rural residents and in the subsidiary plots of city dwellers will go to satisfy the needs of Soviet man and the strengthening of the economy of our society.

12893
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AGRICULTURAL MACHINERY AND EQUIPMENT

AUTOMATED EQUIPMENT FOR PROCESSING, PACKING EGGS ADVANCED

Moscow SEL'SKAYA ZHIZN' in Russian 21 May 85 p 2

[Article by V. Levin, candidate of technical sciences: "Manipulators are Needed at the Farm"]

> [Text] It is known that the production of agricultural products is steadily increasing, while the number of working hands is decreasing. Under these conditions it is especially important, both in crop production and animal raising, to use machinery and equipment which can completely replace people, or do their work.

Automatic manipulators are among such equipment. The most favorable conditions for their use are in poultry raising, especially in the collection, transportation, processing and packing of eggs.

Very simple, individual manipulators are now in use here. A device imitating the movements of human hands is used to remove eggs from standard packages and transfer them to processing lines. These mechanisms still only perform some of the processes. The removal of egg trays from containers and from stacks and their arrangement on the transporter is still done manually.

The packing of eggs after processing is also partially mechanized. Institutes and design offices in the USSR Ministry of Agriculture and the USSR Ministry of Machine Building for Animal Husbandry and Feed Production are working jointly on the comprehensive mechanization of these processes. The most difficult problem is still mechanizing the packaging of eggs gathered from poultry houses. This process is now performed by hand everywhere. Depending upon the productivity of hens, up to 80 percent of all work time is spent upon this tiring and monotonous work. What is more, this does not involve auxiliary workers, but very skilled workers -- operators servicing complicated automatic equipment and doing active zootechnical work with poultry. This manual collection and packing of eggs seems especially archaic against the background of the generally high level of production mechanization and automation attained in poultry raising.

The task is to create an automatic flow line for the collection, packing and stacking of eggs into cartons. This line should work without the participation, or even the constant observation of service personnel. Among its basic elements is to be an automatic manipulator performing the role of egg stacker and which meets quite strict requirements. It should be simple in design, making it possible for it to compete with manual labor. High operational reliability, a "delicacy" in handling eggs, and compactness are all essential qualities for an automat to replace people in poultry houses.

All these properties are possessed by the YaUP-1 automatic egg packer developed by the All Union Scientific Research Institute for the Electrification of Agriculture jointly with the GSKB [State Special Planning and Design Office] for Poultry Raising Machinery. It can handle 5,000 eggs an hour. This manipulator can service practically any poultry house holding up to 45,000 birds. Its storage device for empty and full egg trays makes it possible for the unit to operate for long periods without people. There are no difficulties for its operation in a poultry house and no rearrangements of production operations are needed.

The YaUP-1 manipulator has twice passed state testing. In 1980 a decision was made to produce it. However, the USSR Minzhivmash has not yet implemented this decision. Moreover, for some unknown reason, instead of building an experimental group, the Pyatigorsksel'mash [Pyatigorsk Agricultural Machinery] Plant has built only one new manipulator.

There have been repeated discussions in the press about delays in the production of the important automat, which would lighten people's labor. This has often been discussed at large conferences. However, the situation is not changing. In poultry houses eggs are still gathered manually.

The introduction of the manipulator will double labor productivity and reduce losses from egg damage by three fold. This is understandable, because the automat carefully handles this delicate product. Also, the machine's use makes it possible to organize egg collection all day long.

The unit is the only one of its kind in the world. It is protected by an authors certificate and has been patented in six leading capitalist countries. It was successfully demonstrated at the International Exhibit for Agricultural Machinery in Moscow. It is important in the system for the comprehensive mechanization of agricultural production. In conclusion, I want to note that the use of automatic transfer units and packers for eggs is only the first step in the use of robots in poultry raising. They have a great future. With their help it will be possible to examine and select eggs, sick and dead birds, sanitize and clean poultry houses and perform the most diverse loading and unloading work. The widespread use of robot manipulators will transform poultry factories into highly efficient automated enterprises, making possible more output of this valuable product.

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TILLING AND CROPPING TECHNOLOGY

DEPUTY MINISTER ON PRIMARY TASKS TO FURTHER DEVELOP CROP FARMING

Moscow ZEMLEDELIYE in Russian No 4, Apr 85 pp 5-6

[Article by A. T. Gulenko, deputy minister of the USSR Ministry of Agriculture: "The Primary Tasks in the Further Development of Farming"]

[Text] As a result of the step-by-step realization of the party's agrarian policy in recent years, there has been noticeable progress in developing the management of crop farming--the main branch of agriculture. The foundation of these positive changes is the widespread implementation of zonal systems of crop farming on kolkhozes and sovkhozes. One should note that the idea of a differentiated approach to managing crop farming that takes natural and economic conditions into account belongs to T. S. Mal'tsev. This idea has received general acceptance and development.

At present, the arrangement of sown fields is essentially directed in accordance with a zonal system of crop farming. The areas of fallow fields reached 21.1 million hectares, which is almost the required amount. In comparison to 1980, the area for leguminous crops grew by 2.2 million hectares; perennial grasses, 3.1 million hectares; and corn, 3.2 million hectares. As a result, there was improvement in the composition of predecessor crops and, primarily, winter and spring wheat. More than 30 percent of the planted fields under grain crops in recent years have been seeded with new regionalized strains. There has been significant improvement in the quality of seed material; there has been a noticeable decrease in the time needed to carry out basic field work; and the capacity to apply know-how vigorously in the cultivation of agricultural crops has improved. The introduction of organic fertilizer per hectare of plowed land rose from 4 tons in 1980 to 4.3 tons in 1983, while mineral fertilizer rose correspondingly from 76 to 87 kilograms. In 1984 the introduction of fertilizer in the rows during the planting of grain crops took place on 76 million hectares, against 63.3 million in 1980. All sowing of winter crops receives supplemental feedings. Liming of acidic soil has expanded significantly and there has been widespread use of anti-erosion methods to treat the soil (49.2 million hectares).

As a result of this, the cumulative gross production of agricultural products for 1983-84 rose by 20 billion rubles in comparison with the first two years of the current five-year plan.

At the same time, the level of production achieved in crop farming, grain mainly, failed to satisfy all the country's needs. The October (1984) Plenum of the CPSU Central Committee put forth the task of accelerating the rise of agriculture by means of its comprehensive intensification. The key problem, as before, remains the steady incremental production of grain so that in coming years the country's requirements for both food and fodder grain will be completely satisfied.

Production deficiencies in the level of agricultural output can be explained by many reasons, foremost of which are the repeated droughts of recent years.

Moreover, the growth of stability in crop farming is held back by deficiencies in the organizational activities of the kolkhozes, sovkhozes and agricultural organs. Sharp criticism must be directed at many farms and agricultural organs which still have not actively engaged in zonal systems of crop farming. Particularly alarming is the inertia of many kolkhoz and sovkhoz managers and specialists to introduce soil conservation and moisture retention soil treatment technology. In a number of rayons, especially in the Azerbaijan SSR, the Moldavian SSR, Tajik SSR, Armenian SSR and the Kirghiz SSR, there is failure to pay the necessary attention putting crop rotation--the foundation of the crop farming system--into practice. Simplistic and inadequate amounts of work are being done to combat soil erosion of the inclined lands of the farms in the Russian Federation. Only 17.5 million hectares, or 30 percent of the 56 million hectares of such land, are being subjected to soil conservation technology.

Unfounded reductions in the amount of area cultivated with grain crops are often tolerated. And so, between 1981-83 the fields sown with hard winter wheat decreased by two million hectares in the Orenburg, Saratov and Kustanay oblasts. Significant areas of grain fields are annually used not for their intended purposes. Serious agro-technical violations are allowed while cultivating winter grains which annually results in reseeding over a considerable area. Many farms lack intensity in dealing with weeds, diseases and plant pests. For a number of crops, there is still a lack of highly productive strains and hybrids which possess a complex of beneficial traits.

High limits have been set for the USSR food program for the production of grain and other agricultural products. They can only be achieved with the elimination of deficiencies in work on the kolkhozes, sovkhozes and agricultural organs, as well as with the complete utilization of opportunities to perfect the management of the country's agro-industrial complex.

Intensive work must be forthcoming for further improvement and mastering of crop tilling systems. This is necessary so that they have a clearly delineated soil conservation character. By 1990 the application of soil conservation methods must rise to 100 million hectares, of which up to 57 million will receive flat-cut processing, up to 8 million will undergo subsoil cultivation, and up to 18.6 million hectares under winter crops will be subjected to shallow soil cultivation. We think that industry will accelerate delivery of undersupplied anti-erosion technology.

We have placed great hopes in the introduction of intensive technology in the farming of winter and spring wheat, in realizing increased production

capacity to raise corn, sugar beets, sunflowers, potatoes, flax and other labor intensive crops. Already this year we must till 28 million hectare- using intensive technologies. Of this, 22 million hectares will be for grain crops.

It is important for further expansion to have the necessary amount of fields planted with leguminous crops and groats, hard wheat, corn and soybeans.

Special attention belogns to corn in the country's grain balance. The creation of early maturing strains and hybrids of this crop, the processing of seeds with film-forming compounds and the introduction of industrial technology provide the opportunity to substantially expand the cultivating of corn by means of extending it to the more northerly regions--the Central Black Earth Region, the Volga Region and to others--and to bring it up to 6 million hectares as opposed to 4.3 million hectares in 1984.

An essential reserve to elevate agricultural efficiency is the improved use of the growing volumes of physical and technical resources. Major gains are promised by more rational dissemination of mineral fertilizers according to crops and by natural and agricultural regions. Preference must primarily be given to grain, industrial and vegetable crops, as well as to cultivation on irrigated and reclaimed lands.

Certainly the most important means to increase farm productivity continues to be organic fertilzer. Unfortunately, in a majority of the country's regions, the accumulation and placement of organic matter grows slowly, although the possibilities in this are far from exhausted. The task is that by 1990 applications of organic fertilizer must not be less than 1.5 billion tons against the 1 billion tons for 1984. This can only be achieved by means of an appreciable improvement in production technology and the placement of fertilizer.

A radical improvement is required as is a system of integrated plant protection from weeds, pests and disease. Here it is not only important to build up work volumes, but, first of all, to maximally raise the effectiveness of chemical, biological and agro-technical measures to protect plant life. We must now put into use an integrated system on every kolkhoz and sovkhoz.

Great and complex tasks stand before the country's farmers in connection with realizing the Long-Term Land Reclamation Program, approved at the October (1984) CPSU Central Committee Plenum. A marked increase in the amount and effectiveness of these lands must lead to a doubling of plant growing output from every reclaimed hectare. As a result, the country will be able to derive from these lands almost half of its agricultural products independent of weather conditions. This will substantially raise the stability of this branch. The main point is in the qualitative aspect of work from improved lands. Under consideration is the creation of large-scale guaranteed agricultural production zones using an industrial framework of grain, feed and vegetable factories. This is a completely new way of stating the question which puts forth land reclamation as a decisive factor in the further development of agriculture. In connection with this, there has to be a corresponding orientation of management personnel, kolkhoz and sovkhoz specialists, agricultural organs and all those who work the land. Contemporary land reclamation is a difficult and costly affair. The effect it provides is considerable only when there is a

strict, scientifically founded approach, beginning from project selection right up through cultivating the crops. Therefore, it is very important to organize without delay the mass training of personnel in the use of modern methods of land reclamation and efficient land use, to guarantee the development and introduction of complete crop tilling systems here. First of all, intensive technology and modern methods must be adopted to obtain high programmed harvests, and a collective contract must be suitable everywhere. We have experience in this and have to spread it every way possible. For example, in 1984 cultivation of crops according to the program was realized on an area of 3.2 million hectares.

Technical re-equipping of the branch will contribute to the increase of farm efficiency. It mainly will be completed in the 20th Five-Year Plan. The primary thing is to improve the composition of the tractor pool. For example, we have to expand deliveries of high-powered caterpillar tractors which do not repack the soil, and "Belarus'" wheeled tractors will become more productive. We must increase deliveries and raise the quality of anti-erosion technology. There will be accelerated output of SZS-6 and SZS-12 wide-cut seeding machines; KShL-15 rod-type rotary cultivators, implements used in pre-planting treatment to deal with the stubble of preceding crops; "paraplau" ripper plows; chisel subsoil cultivators; deep ripping flat-pointed cutters; plows for work on inclined land and for reclamation of salt springs; KTS-10-1, KShU-12 and KShU-18 cultivators; and BMSh-15 and BMSh-20 needle-shaped harrows.

At the same time, we must substantially improve on the use of technology, not allowing it to remain idle nor tolerating premature breakdown.

The massive national economic significance and the heightened complexities of the tasks standing before the country's agricultural workers requires a drastic improvement is the organizational and economic work on the kolkhozes and sovkhozes, an increase in responsibility by every worker in this branch for his own work.

8504
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TILLING AND CROPPING TECHNOLOGY

UDC 631.3:633.1

EFFECTIVENESS OF INTENSIVE TECHNOLOGY FOR WINTER WHEAT CULTIVATION

Moscow TEKHNIKA V SEL'SKOM KHOZYAYSTVE in Russian No 5, May 85 pp 11-13

/Article by V.A. Gulidova, candidate of agricultural sciences and V.N. Kirin, engineer at Lipetsk Agricultural Experimental Station: "Effectiveness of Intensive Technology for Winter Wheat Cultivation"/

/Text/ An important condition for increasing agricultural crop yields is that of improving the technological processes involved in their cultivation. In the process, one must take into account the climate, specific agrotechnical backgrounds (soil fertility, predecessor crop arrangements), norms, schedules and methods for applying mineral fertilizers and integrated protection for the plants against diseases, pests and weeds.

The intensive technology fully meets these requirements. It is a totality of the standard soil cultivation methods, traditional technological elements, their interdependence and efficient sequence and also a complex of agrotechnical and organizational measures at all stages -- from preparation of the soil to post-harvest processing of the grain. The basis for carrying out this work is a technological chart on which is recorded the entire process for cultivating the agricultural crop; the operations and their component parts are indicated, the agrotechnical requirements, normatives, the work schedules and volume; the structure for the units is shown, their number, output norms and fuel consumption.

Winter wheat was cultivated in Lipetsk Oblast using the intensive technology over the past 3 years. Initially this was done only on two farms: at the Lipetsk Agricultural Experimental Station and at the Zavety Il'icha Kolkhoz in Lipetskiy Rayon on an area of 100 hectares. The intensive technology made it possible to obtain 2.09 additional tons of grain from each hectare, compared to winter wheat cultivation using the traditional technology. The gluten content of the grain was 28.1-29.3 percent.

In 1984, winter wheat was cultivated on an area of 10,000 hectares using the progressive technology. The average yield obtained from this area was 2.02 tons per hectare, although the climatic conditions were not conducive to a high yield being obtained. In Volovskiy Rayon, for example, a yield of 3.35 tons per hectare was obtained from an area of 800 hectares, with the gluten content of the grain being 29.4 percent. For 1,500 hectares in Lipetskiy Rayon, these indicators were 2.7 tons per hectare and 33 percent and in Dankovskiy Rayon for

600 hectares -- 2.5 tons per hectare and 32 percent. And on such farms as Zavety Il'icha in Lipetskiy Rayon and Kudryavshchinskiy and Verkhne-Donskoy in Dankovskiy Rayon, the yield was 4.3-4.5 tons per hectare.

When the conventional technology was employed for cultivating winter wheat, the yield was 1.0-1.2 tons per hectare and the gluten content -- 21-24 percent.

The production experiment revealed that success in use of the intensive technology for winter wheat cultivation is based upon the carrying out of an entire complex of agrotechnical measures in a high quality manner. This includes -- proper selection of the predecessor crop arrangement, soil preparation, application of fertilizers, sowing of high quality seed during the best periods, differentiated protection of plants against pests, diseases and weeds, split application of nitrogen fertilizers during specific phases of plant development, the use of growth morpho-regulators and timely harvest operations. The technology calls for the presence in the sowings of unsown strips (permanent tracks) for tending the plants.

The intensive technology for cultivating winter wheat in the oblast was developed depending upon the specific selection of agricultural machines for tending the sowings (see Table).

The crop is planted following clean fallow. Fallow is the repair field of a crop rotation plan and the only one on which measures aimed at deoxidizing the soil are carried out. The agrochemical servicing of a fallow field calls for the application of 40-45 tons of farmyard manure and 5-6 tons of lime materials per hectare. The lime materials are applied using ARUP-8 and RUP-8 units.

We plow a portion of the fallow fields in the autumn. When the plowing is carried out during the spring, we employ a special device for levelling off the soil. We fasten levelling bars to the PLN-5-35 plows. They are made from 75 X 75 millimeter angle iron to which studs are welded (see Figure 1). High quality and level plowing can be achieved through a change in the position of the bar relative to the frame of the plow. A field is thus rendered smooth and without ridges and moisture losses are reduced to a minimum.

Taking into account the results of an inspection and the planned yield, we apply phosphorus fertilizers in the full computed dosage during the principal cultivation. For the majority of fields the phosphorus fertilizer dosage is 200-250 kilograms per hectare of active agent and potassium fertilizer -- 90-150 kilograms per hectare.

The irregular nature of fertilizer distribution over a field's surface, depending upon the type of fertilizer employed, the granulometric composition and the swath width of the unit must not exceed 15 percent.

When the intensive technology is employed for winter wheat cultivation, nitrogen nourishment should be made available during the critical phases of plant development. Nitrogen noticeably defines the yield levels for winter wheat and the quality of the grain. The establishment of correct norms for nitrogen fertilizer applications is required. The yields drop sharply when there is a deficiency of nitrogen. The use of unjustifiably high dosages leads to

Technological Operation	Composition of Assembly
Shallow plowing of previous crop	T-150K + LDG-15; T-150K, K-701 + BDT-7
Application of fertilizers:	
organic	T-150K + PRT-10; K-701 + PRT-16
mineral	MTZ-80 + 1RMG-4; T-150K + RUM-8
Loading of fertilizers:	
organic	DT-75M + PFP-1.2
mineral	MTZ-80 + PF-0.75
Principal soil cultivation	DT-75M + PN-4-35; T-150K + PLN-5-35; K-701 + PN-8-35
Tending of fallow field	DT-75M + SP-16 + 2KPS4 + BZSS-1.0; T-150K + SP-16 + 3KPS-4 + BZSS-1.0
Levelling off of field prior to sowing	DT-75M, T-70 + USMK-5.4; T-150K + 2VPN-5.6
Treatment of seed using composite preparations	PS-10, "Mobitox"
Drill sowing with mechanical loading of seed	DT-75M + 3SZU-3.6; ZSK-10(ZIL-130 -- reequipped)
Soil packing following sowing, with soil moisture content not more than 22 percent	DT-75M + SP-11 + ZKKSh-6
Nitrogen top dressing	
1st	DT-75M + ZSZU-3.6
2d	MTZ-80 + RMG-4
3d	MTZ-80 + OPSh-15
4th	MTZ-80 + OVT-1A
Preparation of working solutions	T-150K + RZhT-16
Spraying of sowings against lodging, diseases, weeds and pests	MTZ-80 + OPSh-15; MTZ-80 + OVT-1A
Harvesting of crop:	
direct combining (50 percent)	SK-5
two-phase method (50 percent)	MTZ-80 + ZhVS-6; ZhRS-4.9; SK-5 + ZhVN-6A
Harvesting of straw:	
with chopping (20 percent)	SK-5 + PUN-5
dragging (80 percent)	K-701 + frontal toothless drag harrow; 2DT-75M - VTU-10

excessive expenditures, large nitrogen losses, environmental contamination, lodging of the sowings and, it follows, harvesting difficulties and in the final analysis, a shortfall in grain and a deterioration in its quality. Thus nitrogen fertilizer should ideally be applied in several dosages.

We apply the first top dressing in the spring, just as soon as the plants have resumed growing. The application dosage -- 30 percent of the computed norm. The second top dressing -- at the end of the tillering phase and at the commencement of the shooting phase. The dosage -- two thirds of the computed norm. The third period for applying nitrogen occurs during the formation of the flag leaf, when the ear at the base begins to swell but has not yet appeared, and prior to the end of the heading phase. The dosages for the second and third top dressings should be defined more precisely based upon the

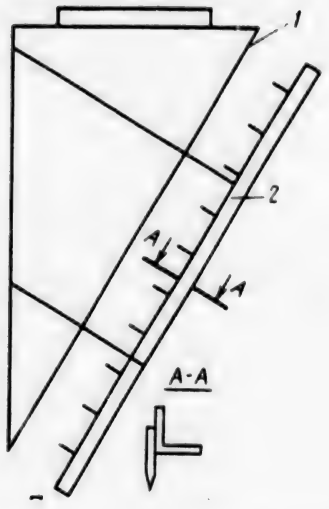

Figure 1. Schematic for attachment for PLN-5-35 plow for levelling the soil:

Key:
1. Plow framework
2. Levelling bar

results of tissue and leaf diagnostics. For the purpose of raising the quality of the grain, we apply still another top dressing during the period from blossoming to milky-waxy ripeness. It makes it possible to increase considerably the protein content in the grain.

The number of top dressings and their dosages vary for each field, since consideration must be given to the nitrogen content in the soil and in the plants, the condition of the sowings and the weather conditions.

We apply the fertilizers using ground equipment. Unsown strip-tracks remain out on the fields for the passage of machines. The first top dressing is carried out using solid granulated fertilizer and written off SCU-3.6, SZ-3.6, SUK-24 or SUB-48 grain sowing machines and the second -- 1RMG-4 spreaders. The third and fourth top dressings are applied using only liquid fertilizers and OPSh-15 and OVT-1A sprayers.

The distribution of seed in a uniform manner and at the proper depth is achieved by means of high quality soil preparation. The levelling off of a plowed field is a mandatory agrotechnical measure.

The intensive technology involves repeated movements by machine-tractor units over a field. The soil deformation spreads to a depth of more than 1 meter. The repeated use of tractors on a field disturbs the structure of the soil and hence lowers fertility.

The units exert a harmful effect not only on the soil but also the plants. Thus the crop losses can amount to from 4 to 8 percent following repeated movements of machines among crops. These losses increase if the movements by subsequent units do not follow tracks previously made.

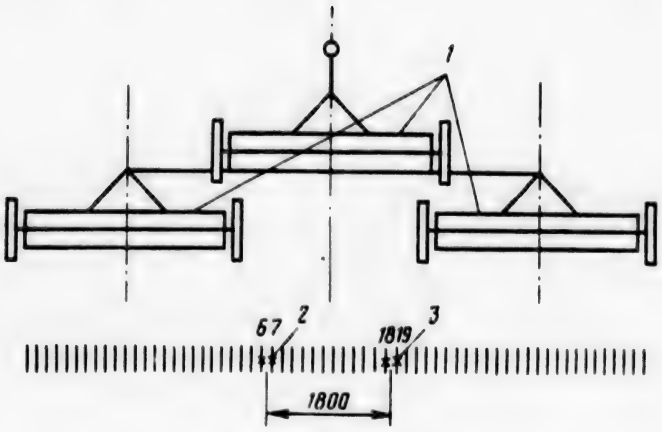

Figure 2. Schematic of a non-coupled triple-unit sowing assembly:
Key:
1. SZU-3.6 sowing machines
2 and 3. Closed 6,7 and 18,19 seed lines.

A permanent technological track left over following sowing makes it possible to lower considerably the adverse effect caused by machines to soil. Towards this end, the sowing units of coulters 7, 8, 9 and 16, 17 and 18 of the SZU-3.6 sowing machine are turned off, thus forming a pair of expanded inter-row spacings. The width of each strip (45 centimeters) is 10-15 centimeters greater than the width of a wheel tract or caterpillar track of a tractor. The track is 1,360 millimeters. It is intended for the operation of OPSh-15 and OVT-1A sprayers ganged with 1.4 traction class tractors. The tractor advances along the technological track. The width of the swath of the mineral fertilizer spreaders and sprayers conforms to the working width of the swath of a triple-unit sowing assembly, or 10.8 meters.

The sowing is carried out using DT-75M caterpillar tractors ganged with three SZU-3.6 or SZ-Z.6 sowing machines and with use being made of S-11 or SP-16 couplings. The schematic for ganging sowing machines without couples is shown in Figure 2. Such sowing assemblies are smaller in size and more maneuverable and require less headland.

A track of 1,800 millimeters is left behind for the operation of 1RMG-4 and RUM-5 mineral fertilizer spreaders. Thus, in the case of a sowing machine following directly behind a tractor, the sowing units of the 6, 7 and 18, 19 coulters are turned off.

The RUM-5 and 1RMG-4 machines have a track of 1,800 millimeters and the OPSh-15 and OVT-1A machines -- 1,350 millimeters. Thus the tract selection will depend upon the particular types of equipment available on the farms. However the OPSh-15 and OVT-1A sprayers can easily be reequipped by expanding the track to 1,800 millimeters.

The presence of a technological track in sowings makes it possible to tend the plants during any phase in their development. The sowings are maintained free of weeds. For the destruction of weeds, use is made of a mixture of the herbicides Dialen and Lontrel at the rate of 2.5 and 0.3 kilograms per hectare

and ammonia salt 2.4-D during the tillering phase (1.5-2 kilograms per hectare). In the process, up to 80 percent of the annual weeds are destroyed.

The seed must necessarily be treated with Granozan or Phentiuram at the rate of 2 kilograms per ton. The treatment is carried out jointly with TUR in a dosage of 5 liters of the plant preparation and 5 liters of water per ton of seed, using Mobitox and PS-10 machines.

For protecting plants against brown rust, powdery mildew and snow mould, we commence treatments in the autumn. We use Fundazol in a dosage of 500 grams per liter against snow mould. We carry out spraying in a selective manner in areas where there is a concentration of the disease. We use a systemic action preparation for combating brown rust -- Bayleton at the rate of 500-600 grams per liter. The first is a prophylactic treatment carried out during the tillering phase and the second -- upon the appearance of the first signs of the disease, but 35 days prior to harvesting the grain crops. When spraying plants, the boom of the machine must be at a height of 400-500 millimeters above the plants. Vortical or slotted sprayers are installed on the boom. If a treatment is carried out using fungicides or insecticides at a norm of from 75 to 150 liters per hectare, use is made of vortical sprayers with 1.2 millimeter diameter openings and for a norm of more than 150 liters per hectare -- slotted. The angle of their installation -- 90° relative to the horizontal plane.

A technological track also serves as a fine reference point. It precludes the possibility of leaving gaps or of processing sowings twice. If the width of the inter-track space is 10.8 meters, the boom of the sprayers is closed for 2 meters at the ends. The quality of the spraying is evaluated every 1-3.5 days (depending upon the type of disease causative agent). The expenditure of the preparation and the working liquid is controlled during operation. A deviation from the norm for applying chemicals by more than 5 percent is unacceptable. Control is carried out twice each shift.

The harvesting of the crop -- the final stage in the technology. It is carried out by means of two-stage (when the moisture content of the grain is more than 30 percent) and direct combining (when complete ripeness is reached and the moisture content of the grain is 20-22 percent).

The principal problem with regard to the introduction of the intensive technology -- incompatibility of the wheel width of the agricultural machines in use and large irregularities in the distribution of fertilizer when there is high productivity. Thus, when applying fine crystalline potassium salt, the optimum sowing width is less than one half of the overall actual width of the spreading operation. Hence it is difficult to maintain the fertilizer application dosages for such machines and it is impossible to apply small dosages (30-40 kilograms of active agent per hectare). The uniformity in applying fertilizers must be not less than 95 percent.

When use is made of the intensive technology, a requirement exists throughout the growing season for 1.5-2 tons of working liquid per hectare and this is difficult to arrange in the absence of special solution units. We are adapting the RZhT-16 unit for this purpose.

The seed sowing norm must also be maintained in a strict manner. The SZ-3.6 and SZU-3.6 sowing machines do not satisfy this requirement completely. The difference in the amount of seed sown per square meter fluctuates up to 50 grains. Nor is uniform placement of the seed being ensured. An increase in the operating width of the agricultural machines being used for tending the plants will lower the area of the unsown strips to 3 percent compared to 6.4 percent at the present time. A reduction will also take place in the time required to carry out the work.

7026
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TILLING AND CROPPING TECHNOLOGY

INTENSIVE TECHNOLOGY EMPLOYED FOR CULTIVATION OF WINTER GRAIN CROPS

Krasnodar SEL'SKIYE ZORI in Russian No 9, Sep 84 pp 1-2

/Article: "Reliable Foundation for the 1985 Harvest"/

/Text/ The farmers are faced with a very tense autumn work calendar; they have many urgent affairs to attend to out on the fields and meadows. The kolkhozes and sovkhozes in the north Caucasus and the central chernozem zone have already made a considerable contribution to the state's grain resources. To supply the state's granaries with 4,315,000 tons of grain -- such is the present obligation of the Kuban workers and they are selflessly striving to cope with it. In 17 rayons throughout the kray, a hectare of cereal grain and pulse crops furnished 40 or more quintals of grain and the farms in Dinskiy, Ust-Labinskiy and Korenovskiy rayons in Krasnodar Kray -- 47-49 quintals. A large number of kolkhozes, sovkhozes and rayons over-fulfilled to a considerable degree their tasks for procuring strong and valuable wheat. Included in this category was almost all of the wheat delivered to elevators from fields in Stavropol Kray. More and more new rayons are submitting reports here concerning the successful carrying out of the first commandment, bringing the kray closer to achieving the planned goal -- supplying the country with 1,960,000 tons of grain. Many farms have already completed their plans not only for this year but also for the five-year plan as a whole. Included among them is the Kommunisticheskiy Mayak Kolkhoz in Kirovskiy Rayon, which is constantly increasing the return from a hectare of grain crops. During the 10th Five-Year Plan, the local field crop growers obtained an average of 23.2 quintals per hectare and during the current five-year plan -- 32 quintals per hectare. This made it possible to increase the purchases of grain. Compared to the last five-year plan when 27,915 tons of grain were procured, during 4 years of this current five-year plan -- 28,748 tons.

The sunflower, groat and row crops have ripened. Beets are being delivered to the sugar plants. The "green harvest" is continuing, silage and composite mixtures are being procured, the laying in of corn grain of a raised moisture content for forage purposes is being expanded and the production rates for vitamin grass meal are being intensified. If the level achieved in the production of livestock husbandry products is to be surpassed, each kolkhoz and sovkhoz must have an adequate amount of feed. Warm days are at hand on the vegetable and potato plantations and in the orchards and vineyards.

The harvest crowns the work performed by the farmers over a period of many months in close contact with their partners in the agroindustrial complex, all of whom waged a persistent campaign in behalf of the harvest for the 4th year

of the five-year plan. And today special importance is being attached to providing complete protection for all of the crops grown -- the final result expected in any collective is dependent upon such action being taken. The farmers of the Terskiy Rayon Znamya Lenina Kolkhoz in the North Osetian ASSR obtained a rather generous return from their fields -- 34.7 quintals of wheat and 38 quintals of barley per hectare. Generous yields are also being obtained by the farms in Nazranovskiy Rayon in the Chechen-Ingush ASSR, which this year is completing its five-year plan for the production and procurement of farming products, the Kolkhoz imeni 1 Maya in Kursk Oblast, which obtained an average of 25 quintals of wheat and rye, and by many other collectives.

Yes, the farmers must wait many months before realizing the final result and it is in the autumn that they take their first steps toward this goal. For it is at this time that they prepare their fields for the winter or spring crops and plant good quality seed in the soil.

Thus, once again it is time to establish the foundation out on the fields for the new harvest. In the Kuban region, the farmers in Kushchevskiy Rayon are setting a fine example as they display thorough concern for creating a reliable foundation for the harvest of the final year of the five-year plan. They have assigned themselves the task of raising the productivity of the fields and increasing the per hectare grain yields to not less than 32 quintals. Their slogan "All work to be carried out only in a high quality manner" is being followed by a large number of kolkhozes and sovkhozes throughout the kray. In the Chechen-Ingush ASSR, the workers in Naurskiy Rayon initiated a republic socialist competition for the timely and high quality carrying out of winter crop sowing and autumn plowing operations. The winter crop fields in this rayon occupied 23,500 hectares and almost one half of this area was prepared using the non-mouldboard method.

In pondering why it is that some farms constantly obtain good per-hectare yields while others which operate under like conditions obtain considerably less, we again and again direct attention to the different types of land management being employed, the different cultures of farming and the different approaches being used in observing the agrotechnical requirements. The future crop does not condone excesses from the standpoint of weather conditions, haste or tardiness in the carrying out of any method. The preparation of fields was dragged out excessively last autumn in the North Osetian ASSR; approximately one third of the winter crops were sown late in insufficiently prepared soil and this had an adverse effect on the yields. This same situation occurs frequently in other rayons in both zones.

Winter grain crops constitute our chief grain source. Millions of hectares in the north Caucasus and in the central chernozem zone have been set aside for the sowing of these important crops and it is a matter of honor for the farmers and their partners in the agroindustrial complex to obtain a maximum yield from each field.

A distinctive feature of the present autumn period -- extensive use of the intensive technology in the cultivation of winter crops. This task was assigned during a meeting of the Politburo of the CPSU Central Committee, at which time an examination was undertaken of the recommendation by the All-

Union Academy of Agricultural Sciences imeni V.I. Lenin with regard to increasing grain production through the intensive use of clean fallow and the introduction of progressive technologies. In the decree concerning this question, it was noted that the experience accumulated in all regions of the country confirms the high results being realized from such management of the grain economy, particularly with regard to improving its stability and ensuring a guaranteed increase in the gross yields of high quality grain. The respective ministries and departments and party, soviet and economic organs have been tasked with implementing urgent measures directed towards introducing leading technologies for the cultivation of winter crops into operations in behalf of the 1985 harvest.

The essence of the intensive technology lies in the fact that it is possible, during any year and regardless of weather conditions, to obtain stable and large yields of high quality grain and mainly of strong and valuable wheats. Its conclusive feature -- complete use of the available bioclimatic potential and the creation of more favorable prerequisites for intensive growth in the winter crops during all phases of their development.

Towards this end, the sowings are carried out using high quality seed for the most productive varieties and following the best predecessor crop arrangements, mainly following clean fallow. The plants are provided with nutritionally balanced fertilizers in strict conformity with the programmed yield and, owing to the use of an integrated system, they are reliably protected against weeds, pests and diseases. All of this is accomplished using the ground method and precisely at those times when the winter crops are most in need of effective preparations in accurately determined dosages. It is for this purpose that permanent tracks remain on the fields following the sowing work -- technological tracks along which the units move as they till the winter crops throughout the entire growing season.

This is not the first year that use has been made in our zones of the intensive technology -- considered to be the highest form for the use of fallow. The Lipetsk Oblast agricultural experimental station pioneered the introduction of this technology in the country. An all-Russian seminar dedicated to this technology convened here recently in Lipetsk. And the Lipetsk workers had something to display and something to discuss during this seminar. Last year, the station's winter crop fields, which were cultivated using the new technology, produced 65 quintals on each of 50 hectares. The grain met the standards for strong wheat and its gluten content was 29.3 percent. The Zavety Il'icha Kolkhoz in Lipetskiy Rayon obtained 52 quintals of this grain and this also resulted from use of the progressive technology.

This year 10,000 hectares were set aside at 64 farms throughout the oblast for the carrying out of a scientific-production experiment. Owing to dry weather experienced during the autumn and spring, the programmed yield was not obtained. Nevertheless the yield was higher compared to other sowings. It is interesting to note that all of the grain was of high quality and had a gluten content of 29.2-35.6 percent. And this was of special importance considering the conditions found in the central chernozem zone. Having obtained their best yield from intensive fields this year, the farmers became convinced that regardless of the weather problems this new technology would be of great help in carrying out the grain campaign.

The field crop growers in Krasnodar and Stavropol krays and in Tambov Oblast are convinced regarding the advantages offered by the intensive technology, since it was in these areas that the technology was tested on 1,000-2,000 hectares and produced high results. Wheat which was grown in the Kuban using the new method and following bastard fallow and sunflowers produced an average of 54.3 quintals -- 9.6 quintals more than the amount obtained from control plots. At the Novoaleksandrovsk Rossiya Kolkhoz in Stavropol Kray, 55 quintals of excellent grain were obtained from each of 475 hectares of intensive sowings -- 19 quintals higher than that obtained from other fields. Despite the increase in expenditures which this technology required, the production cost per quintal turned out to be 11 percent lower than the average level of expenses. Taking advantage of this fact, the Tambov Komsomolets Sovkhoz succeeded in obtaining almost 43.8 quintals from each of 100 hectares and at the Krasnoye Znamya Kolkhoz in Rasskazovskiy Rayon -- 31 quintals.

The area for the use of the new technology in behalf of next year's harvest has been expanded considerably in our zones with full confidence in the success of the undertaking. The Lipetsk farmers, who were the first to check out this technology on their fields, are now growing such crops on 130,000 hectares -- all of the fallow fields were expanded for this purpose. The kolkhozes and sovkhozes in the Kuban have set aside 480,000 hectares for this purpose, in Stavropol Kray -- 400,000, Tambov and Kursk oblasts -- 150,000 and in Belgorod Oblast -- 80,000 hectares. This will undoubtedly produce an additional increase in grain.

On farms where the new technology is being employed, the winter crops are being sown following predecessor crop arrangements which involved ample amounts of moisture and fertilizer, mainly clean fallow. Following an appropriate inspection, agrochemical and phytosanitary passports are prepared for the fields. In Lipetsk Oblast, such passports have been established for each of 608 fallow tracts intended for the cultivation of winter crops using the new method.

The intensive fields, upon which unsown strips stretch out along the caterpillar tracks among the green seedlings, appear somewhat unusual. The technological track consumes up to 7 percent of the area and yet this loss is more than compensated for by a considerable increase in the per-hectare yield. Just as soon as the schedule calls for such action, fertilizer spreaders and sprayers move out along these permanent tracks, with no damage being inflicted upon the plants by their wheels, for the purpose of providing each plant with a timely top dressing and protection. For them the path out on the field is open during all phases in the development of the winter crops and this means that they can protect the sowings against lodging and against any and all diseases and pests that might appear.

It is known that not all of the dimensions of the machines and implements used for tending the sowings conform to the width of the permanent technological track. Moreover, the work concerned with re-equipping these machines should not be dragged out, since the carrying out of a complex of additional operations out on the fields is dependent upon use of these machines.

Importance is attached to ensuring that each individual entrusted with employing the new technology -- farm leader, specialist or machine operator --

possesses a thorough knowledge of all of its characteristics and fine points and be familiar with all experience accumulated in this regard, so as to ensure that the new method is implemented in a timely manner and without errors.

Special responsibility for the carrying out of production experiments on a wide scale has been assigned to scientific institutes, which consist of groups of farms, and together with their specialists and agricultural organs they organize the implementation of the technology. They must serve as consultative and methodological centers.

The introduction of new methods for the programmed cultivation of grain crops will undoubtedly promote the stable development of grain production, make it possible to obtain a worthy yield during any year and to make a greater contribution towards implementing the Food Program.

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TILLING AND CROPPING TECHNOLOGY

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GRAIN HARVESTING TECHNOLOGIES COMPARED FOR EFFICIENCY

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[Article by Ye. Bazarov, candidate of technical sciences, academic secretary, Division of Agricultural Mechanization and Electrification, All-Union Academy of Agricultural Sciences imeni V. I. Lenin: "The Efficiency of Various Grain Harvesting Technologies"]

[Text] The natural climatic conditions for cultivating and harvesting cereal grains in our country are exceptionally diverse. Depending the on the regional conditions, yields of these crops can vary from 7-8 to 50-60 q/ha, field size from 5-7 ha to 300-400 ha, moisture content at time of harvest from 10 to 35-40 per cent and the grain-to-straw weight ratio from 1:0.8 to 1:2.5. According to agrometeoclimatic data, total unused temperatures above 10°C (that is, those which under favorable fall conditions would promote the accumulation of the organic component in fall crops planted after the harvest of the early cereals) will vary from one part of the country to another: from 0-200°C (in Novosibirsk Oblast) to 1700-1800°C (in Krasnodar Kray). We will also see big differences in the moisture index for the months of July and August as we move from one agricultural region to another: 0.13-0.19 (Krasnodar Kray and Northern Kazakhstan) to 0.36-0.64 (Novosibirsk Oblast and Primorskiy Kray). It should therefore be kept in mind that, due to the short period which is free of frost, which in Tselinograd and Novosibirsk oblasts is less than 110 days long, any part of the harvest which is not brought in on time in these areas will frequently be snowed under. In regions of excess moisture, on the other hand, the Baltic and Primorskiy Kray, for example, the conclusion of the harvest season will as a rule see the beginning of a rainy period.

These circumstances dictate the necessity of searching for the broadest range of strategies for full mechanization of grain harvesting operations. Because the sun-plant-animal-machine-man system comprises a series of complex energy exchange processes, it would be of advantage to supplement the economic analysis we do with an analysis of the efficiency of our technological solutions from the bioenergetic point of view.

Bioenergetic efficiency is conventionally defined in agriculture as the ratio of the energy contained in the product to total energy consumed. In our case, the most efficienct grain harvest mechanization strategy which yields the maximum organic material per unit of aggregate energy. This method makes possible an objective determination of the most efficient of the solutions proposed.

The country's scientific and design efforts in the area of grain harvest mechanization are now focused in two basic directions: first, the grain is threshed for the most part in the field while the combine is in motion, with its components (grain, chaff and straw) then transported from the field separately; second, after the cutting, the grain with all its components is transported to a permanent facility in a single bulk transfer and only then separated into grain, chaff and straw. So there are two diametrically opposed approaches: threshing in the field vs. threshing at a permanent facility.

The first direction is characterized by the search for better equipment and new methods of combine harvesting whereby the straw is ground and hauled to the edge of the field in interchangeable trailers. At the same time, development is under way on combine with higher throughput capacity (10-12 kg/s) and efficiency for grain harvesting operations in fields with yields greater than 40 q/ha. Extra-wide reapers with up to 15 meters' reach are being developed for independent operation. Plans also call for the production of new, high-efficiency straw-gathering machinery.

The years immediately ahead will see the introduction of an improved version of a combine harvester referred to for now as the Neveyka. The new feature offered by the Neveyka is that it will make it possible for special combines to pass through a field, collect grain with moisture contents of up to 26 per cent, transport it to special permanent facilities and there separate it into grain and chaff. With this method, the straw will remain in the field or in ricks until the beginning of stacking operations, ground up, scattered over the field and then worked into the soil or hauled in interchangeable trailers to the edge of the field. This technology is now undergoing testing by GSKB in Taganrog at the North Caucasian branch of the All-Union Scientific Research Institute of Agricultural Mechanization (AIM). Participating in development work on the various machines for the Neveyka system are AIM, VNIIPTIMESKh (Zernograd), SibIME [Siberian Scientific Research Institute of Agricultural Mechanization and Electrification] (Novosibirsk), UkrNIIMESKh [Ukrainian Scientific Research Institute of Agricultural Mechanization and Electrification] (Kiev) and GSKB [special state design bureau] in Taganrog.

Work in the second direction involves the development of fragments of industrial technologies with collection of the entire crop as harvested in trucks. It will then be hauled either to permanent processing facilities or to the edge of the field for later processing and separation into components (grain, chaff and straw). Worthy of attention in this connection is the work under way at the Kuban Agricultural Institute, AIM's Baltic center and the Kazsel'khozmekhanizatsiya Scientific-Production Association.

The distinguishing new feature of the system under development at the Kuban' Agricultural Institute, which has been described in the article by F. M. Kanarev and A. P. Kuzovlev, consists in the fact that the crop is harvested, first, without the use of any combine and without raking up any windrows, and second, with the use of machines which will not only cut, process and load the entire cutting into trucks, but by blowing a hard jet of air through it, will also remove a substantial portion of the surface moisture during the evening and morning hours as well as on overcast days. Third, the special-purpose permanent facility in this system will have a multipath process of moving all components of the

threshed product to storage for later processing into feed. Because of the fact that this system generates only minimal amounts of waste, it has been designated a "waste-free" technology. Early tests have shown that crops can be harvested with surface moisture levels of up to 60 per cent.

The technology under joint development by AIM's Baltic center and the Latvian Scientific Research Institute of Agricultural Mechanization and Electrification is being designed to harvest grain crops under conditions characterized by an excess of moisture. The unique feature of this system consists in the fact that the crop is cut and raked into windrows, picked up by a helical press, rolled into rolls and simultaneously treated with chemical preservants. It is then transported to a special processing facility where it is separated into its various components. Following a curing process, the surface moisture is released into the atmosphere, with the moisture in the grain and straw in the rolls now not exceeding 20 per cent (initial moisture levels could have been between 30 and 35 per cent). Pressing the crop into bales immediately upon being harvested eliminates entirely the energy-intensive operation of grinding the straw by a machine in the field and cuts down on the amount of transportation required, while the use of preservants helps reduce the amount of energy required to remove surface and internal moisture. Furthermore, when the crop is cured in the rolls the grain has a chance to absorb some of the nutrients contained in the straw. Tests of this new system are now under way on 25th CPSU Congress Kolkhoz in the Latvian SSR's Ekabpilsskiy Rayon.

The distinguishing feature of the process developed by the Kazsel'khozmekhanizatsiya Scientific-Production Association consists basically in the fact that at the same time the grain is being mowed, the unthreshed stalks are gathered and loaded into trucks and that the entire crop is then hauled to the edge of the field for storage. Depending upon how economically advantageous it is as well as on the biological maturity of the crop, the grain can be threshed either at the edge of the field itself simultaneously with the mowing operation or later after a certain period of time has elapsed. The grain is threshed by special mobile field facilities. The grain and the chaff are transported to storage separately, while the straw remains ricked at the edge of the field for later use in the animal husbandry operations.

It should be pointed out that the Tselinsel'khozmekhanizatsiya Scientific-Production Association is working on a similar system, with the exception that, like the Kuban' technology, it involves the processing of the entire crop at special permanent facilities.

Also attracting a great deal of both scientific and practical interest is work under way at VNIPTIMESKh (Zernograd, Rostov Oblast) and SibIME in Novosibirsk. The industrial flow approach VNIPTIMESKh is looking at combines an operation in which the windrows are picked up by pick-up and press machines with something resembling the Kuban' Agricultural Institute system or, if necessary, an operation based on the principles of the Neveyka concept. The combination of both these systems is dictated not only by the characteristics of the production operations involved in the harvest as determined by the weather, but also by the different uses the farms make of the straw. Take feed, for example. For the stockmen, straw from the spring-planted grain crops is a high-food-value feed source, so it stands to reason that when they harvest their spring crops

they will want to use the Kuban' system. Straw from winter wheat, on the other hand, is of less value, so attention will be given first and foremost to the harvesting of the grain and the collection of the chaff. This would call for the Neveyka method. As far as the straw is concerned, it will go to the stacker or left in windrows and then picked up by the straw pick-up machines. Production tests of this industrial flow-line method are now under way on Gigant Sovkhoz in Sal'skiy Rayon in Rostov Oblast.

The grain harvesting system developed by SibIME involves the harvesting of the entire crop and then the transportation of it to special permanent facilities where it will ripen to maturity and then be dried, threshed and separated. The most important distinguishing characteristic of this system consists in the fact that the entire standing crop is ricked (with up to 1000 m^3 per rick) with a path then opened up inside the rick to permit active ventilation. The ripening and drying process takes 10-15 days. The grain absorbs nutrients from the drying straw. At the end of this period the ricks are broken down by clam-shell loader and the grain moved to a special permanent facility for threshing. Then comes the Kuban' process. Together with this process, the plan also calls for processing the grain in a permanent facility as is done in the Neveyka system, just as it is in the VNIPTIMESKh scheme. This approach is now undergoing testing at the Cherepanovo experimental demonstration farm in Novosibirsk Oblast.

As can be seen from this brief survey, we are now engaged in an intensive search for more efficient grain-harvesting systems. And what prompts the interest in all this? We are attempting to analyze these problems from the point of view of the laws governing the stability of energy exchange and bioenergy efficiency.

Let us state one initial hypothesis at the outset: we will not be looking at the harvest as the final phase of a year's production. We treat it, rather, as the initial link in the subsequent chain of production operations, that is, as the initial step in the process of producing the next year's harvest. From the production point of view this is an objective approach, what with the fact that after the harvest we must do what we can to seal in moisture, fight weeds, complete our preplanting preparations and plant the winter crops or plow the fall fields to accumulate soil moisture for the spring crops to be sown the following year.

Here, for example, is what happens in the dry grain-farming areas, which is what most of the country's grain-farming regions are. During the dry season, water will evaporate out of the upper layer of the soil, which "drops" its productive horizon to a point 4-5 cm below the depth to which the seed should be covered. This is particularly the case when once the harvest begins the sun shines directly on the soil, which will now remain unshaded for a long period of time. Machines cannot be used to lock the moisture in immediately, what with the windrows and ricks in the field. To sow a winter crop in dry soil will reduce yields by 50 per cent. The farmer will be running no less a risk if he holds off on his planting to wait for rain. The results of varietal tests show that today's varieties of intensive winter wheat are highly sensitive to sowing times since they are not able to take full advantage of total positive temperatures (above 10°C), that is, they do not get the required amount of solar energy in the organic component so as to be able to survive the winter in good condition and store up the growth energy they will need for the following year. According to data collected by I. I. Khoroshilov, when the Mironovskaya 808 variety

of wheat is planted 10 days after the optimum planting time the yields will drop 35 per cent. So it is not difficult to imagine the enormous amount of solar energy which would now go unused toward the harvest if the farmer does not get soil moisture locked in and the seed planted at the optimum times.

Therefore, the traditional system of harvesting grain crops using today's combines and straw-gathering machines places serious obstacles in the way of efforts to perform the next, extremely important agrotechnical operation, that is, the steps required to help the soil retain as much moisture as possible. It takes 2.5 times longer to gather in the straw than it does to harvest the grain; this means that it is going to take a minimum of 27 days to complete the stacking operations. The soil loses an enormous amount of moisture over this period of time, productive moisture which can no longer be used by the plants. And this in turn has a negative impact on the efficiency of energy exchange in the sun-plant system.

Stacks of straw which remain in the fields until ricking are also sources from which the fields are infested with weed seeds, disease carriers and crop pests. Additional herbicides and fertilizer are used in attempts to make up for crop losses, and no small amounts of energy are required to produce these products. For example, it takes 4 kg of liquid fuel to make 1 kg of active nitrogen substance and roughly 4 times more than that to produce 1 kg of herbicide. But because of shortages of liquid fuel and raw products the production of fertilizer and herbicides is still limited and is not satisfying the demand.

Agriculture is the only sector of the national economy which "collects" the sun's rays in plants and then "stores" this renewable solar energy in an organic substance. So the less we have to expend in the way of manpower, materials and fuel to tap this "free" energy supplied by nature, the higher the bioenergy efficiency of the agricultural sector, which in our case means the higher the efficiency of our harvesting operations.

Let us now look at what we have been talking about in the language of statistics. Let us begin with some estimates of the increase in grain and nongrain products (chaff and straw) and the coefficients of solar energy utilization reflecting these increases. The shorter the period of time required to harvest the grain and rick the straw, the fewer the weeds that remain in the field and the lower the losses of grain, chaff and straw, the higher these figures are going to be. Table 1 shows approximate estimates based upon standard production flow sheets and experimental data collected by some of the country's scientific institutions on production tests of different methods of harvesting grain crops in the Northern Caucasus. Computations assumed that over the short term the agricultural demand for combines and straw-gathering machinery would reach optimum levels. Grain crops will therefore be cultivated and harvested in accordance with standard production flow sheets and on an optimum schedule. To facilitate comparison, the flow sheets incorporated just a few changes having to do with the new harvesting systems, the Neveyka (system 1) and Kuban' (system 2) systems, for example. In comparing increases in yield, we took the difference between the results of computation and actual data from the Northern Caucasus. Here it was assumed that machinery used in application of the Kuban' method would not be operated at night or in the morning or during humid, overcast weather. It has also been assumed that both systems cut grain harvesting times by 13 days and

that the time gained by keeping the fields free of ricks and windrows amounts to 20 days with system 1, 27 days in the case of system 2.

Table 1

Increases in grain, chaff and straw production anticipated from two harvesting systems employed in the Northern Caucasus

	System 1	System 2
Increase in grain yields (economic estimates), q/ha:		
from reductions in time required for harvesting operations	4	4
as a result of reductions in time required to remove ricks and windrows from fields (from time used for soil moisture conservation measures)	5.6	7.6
from more efficient use of fertilizer (as a result of lower levels of weed infestation)	6.8	8.8
Total increase in grain yield	16.4	20.4
Increase in yields, q/ha:		
of chaff	3	5
of straw	10	15
Total anticipated increase in yield:		
in feed units	2040	2690
in units of energy content, MJ	47920	66460

These estimates show the high agrotechnical efficiency of both systems as compared with real-world data. For example, we can anticipate a total increase in grain yield of up to 16.4 q/ha with system 1 (a 46.8 per cent increase), as much as 20.4 q/ha (a 58.3 per cent increase) with system 2, increases in chaff production of up to 3 and 5 q/ha (33.3 and 55.5 per cent increases) respectively and increases in straw production of 10 and 15 q/ha (38.4 and 57.7 per cent increases) respectively. Production in terms of feed units per hectare can be increased by 2040 and 2690 respectively (44.3 and 58.0 per cent). Energy content of the entire biological mass would increase by 47,920 MJ (42.7 per cent)

and 66.460 MJ (59.3 per cent). At the same time, it is clear that from the agrotechnical point of view a system which involves removal of the entire biological crop and then processing it in a permanent processing facility is more efficient, since increases in yields in terms of units of energy content are greater than those obtained by improving the combine method of harvesting.

Table 2

Expenditure of aggregate energy in the form of resources consumed in two systems of harvesting grain crops per 1 ha planted area, MJ

	System 1	System 2
Machines, equipment, transportation	2679.6	2144.1
for harvesting operations	1856.4	1329.3
Fuel and lubricants	11909.1	10621.2
for harvesting operations	4865.4	3577.5
Electric power	963.9	2870.2
Organic fertilizer	8400	8400
Mineral fertilizer		
N	3732.4	3732.4
P	493.9	493.9
K	725.4	725.4
Toxic chemicals	2549.5	1272.9
Labor costs	403.6	354.1
for harvesting operations	190.9	138.8
Total energy consumption	31857.4	30614.2
for harvesting operations (including toxic chemicals)	10426.1	9188.7

What we want to see from the economic point of view is an end result which is commensurate with expenditures. Table 2 shows estimates of aggregate energy consumed in the form of resources and transferred by man to his product through his labor. The need for this approach was dictated by the fact that for experimental machines the price formation mechanism has not yet been perfected. Raw data for computations of aggregate energy was generated on the basis of standard production flow charts and refined taking account of data from tests of the Neveyka and Kuban' systems (For more on the mathematical procedures employed see EKONOMIKA SEL'SKOGO KHOZYAYSTVA, No. 12, 1983, pp. 32-27). Let us point out here that the labor cost equivalent includes not only the energy expended by the human worker himself, but also the energy content of his diet and cost of reproducing the work force in the social and domestic spheres.

From the data in Table 2 we can see that expenditures of aggregate (fossil) energy expressed (similar to cost) in terms of resources are roughly the same for both systems. If we employ system 1, we consume as much energy in drying the grain by means of active ventilation and then in threshing it in permanent facilities as we save in machinery, equipment and fuel and lubricants (roughly 2000 MJ). System 2 saves us a certain amount of energy by reducing chemical costs (approximately 1300 MJ), which can be attributed to the need for less herbicide since the fields have fewer weeds. But as a component of total expenditures, this saving is so slight that we can disregard it in our analysis. Fuel, lubricants, electricity, fertilizer and herbicides account for most of the energy consumed (over 85 per cent of it). Energy consumption related to machinery, equipment and transportation is insignificant (less than 10 per cent). Real savings can therefore be achieved only by making for efficient use of fuel, lubricants and fertilizer. From this point of view the systems calling for the use of permanent facilities are to be preferred.

Table 3

Indicators of bioenergy efficiency for two methods of organizing grain harvesting operations at latitudes between 45 and 50°

Method 1 - improved combine harvesting with crop components separated in the field

Method 2 - crop harvested and separated during processing in permanent facilities

	Фактически, 1980 г. 1	Северный Кавказ 2		Северный Казахстан 3		Лесостепь Сибири 4		Приморский край 5	
		Перспектива 1 6	Перспектива 2 7	Перспектива 1 6	Перспектива 2 7	Перспектива 1 6	Перспектива 2 7	Перспектива 1 6	Перспектива 2 7
8 Урожай хлебной массы в пересчете на сухое вещество, ц/га	2,88	8,44	9,40	2,36	3,11	3,31	4,14	4,55	5,69
9 Энергосодержание хлебной массы, Мдж (V)	55 600	163 070	181 610	45 600	59 100	64 000	80 000	88 000	11 600
10 Расход совокупной (ископаемой) энергии, Мдж (Q)	16 776	31 857	37 614	8 042	6 143	18 147	17 881	31 222	30 631
11 Энергетический коэффициент, $\frac{V}{Q}$	3,31	5,13	5,06	5,68	9,71	3,53	4,48	2,82	3,6
12 Коэффициент использования солнечной энергии посевами зерновых (приход солнечной энергии принят равным $30 \cdot 10^6$ Мдж в год), $\eta_s \cdot 10^{-3}$	1,85	5,43	6,05	1,52	1,97	2,13	2,66	2,93	3,66
13 Критерий эффективности использования совокупной (ископаемой и солнечной) энергии: $\eta = \eta_s \left(1 - \frac{1}{g}\right) \cdot 100\%$	0,129	0,437	0,5 3	0,125	0,177	0,153	0,207	0,131	0,264

KEY: 1 - actual figures for 1980; 2 - Northern Caucasus; 3 - Northern Kazakhstan; 4 - Siberian forest steppe; 5 - Maritime Province; 6 - method 1; 7 - method 2; 8 - yield in dry measure, q/ha; 9 - energy content of crop, MJ (V); 10 - - fossil energy consumption, MJ (Q); 11 - energy coefficient, V/Q; 12 - coefficient of utilization of solar energy by crop (available solar energy assumed to be $30 \cdot 10^6$ MJ/yr), $\eta_s \cdot 10^{-3}$; 13 - criterion of efficiency of energy use (fossil and solar): $\eta = \eta_s (1 - 1/g) \cdot 100\%$.

The bioenergy analysis method also makes it possible to compare these systems with respect to increases in crop energy content as compared with energy consumption (solar energy, fossil energy, animal power and human labor). What is interesting from this point of view is to analyze the different directions in the mechanization of grain harvesting operations with reference to the bioenergy indicators we obtained from rough estimates not only for the Northern Caucasus, but for other parts of the country as well, namely, Northern Kazakhstan, the forest steppe region of Western Siberia and the Maritime Province (all areas lying between 45 and 50° latitude and characterized by identical annual insolation but by different natural and climatic conditions). The raw data we used in our analysis was based upon standard production flow charts taking account of variations in regional grain cultivation and harvesting practices.

Results of summary computations show (see Table 3) the high bioenergy efficiency of harvesting methods involving the separation of the crop into its various components (grain, straw and chaff) in permanent processing facilities in all areas of grain cultivation between 45 and 50° latitude. But the greatest increase in the indicators is still to be observed in Northern Kazakhstan, the forest steppe of Siberia and the Maritime Province: the efficiency criterion in 0.177 (an increase of 41.6 per cent), 0.207 (a 36.3 per cent increase) and 0.264 (an increase of 38.2 per cent) respectively.

On the basis of computations of bioenergy efficiency and other data we have been able to establish two basic regularities:

1. The systems whereby the crop is processed in permanent facilities are the most advantageous: in areas where the climate is dry, areas in which the harvest has to be completed as quickly as possible because of the need to preserve (lock in) productive moisture in the soil for the planting of the winter crops, in areas of excessive moisture where there is always the danger of major crop losses in the field and in areas in which weather conditions are normal and yields run below 20 q/ha and above 50 q/ha.

2. Systems in which the crop is processed in the field by improved combines are more efficient where grain yields run between 20 and 50 q/ha and crop moisture at harvest time does not exceed 30 per cent.

In grain-growing areas where seed grasses (clover, alfalfa, smooth brome grass etc.), legumes or rice are also grown, we must give clear priority to the systems which have the crops processed in permanent facilities by virtue of the sharp reduction (sometimes up to 50 per cent) in losses.

According to the food program, by 1990 we are supposed to see grain yields rise to 21-22 q/ha. This means that harvesting systems whereby a crop is processed in a permanent facility can be employed effectively on roughly 50 per cent of the country's arable sown to grains, 75-80 per cent in the European part of the country, Northern Kazakhstan, Siberia and the Far East. According to statistics for the period 1891-1975 gathered by I. B. Zagaytov and P. D. Polovinkin (see Zagaytov, I. B. and Polovinkin, P.D., Ekonomicheskiye problemy povysheniya ustoychivosti sel'skokhozyaystvennogo proizvodstva [Economic Problems of Stabilzing Agricultural Production]. Moscow, 1984, p. 237), years in which weather conditions are normal occur with a probability of 21-25 per cent, those in which

the weather tends to be on the dry side will occur 37-40 per cent of the time, with the years in which moisture levels become excessive occurring with the same probability. This forces us to look for more economic variants on grain harvesting methods. It is our view that the most acceptable relationships between the methods involving the use of permanent facilities and those which use combines can be found for each region depending on the weather conditions in any given year. According to calculations based upon bioenergy analysis, the following can be considered the optimum ratios for the different regions: Northern Caucasus - 50:50; Northern Kazakhstan - 60:40; the Siberian forest steppe - - 70:30; the Maritime Province and the Baltic - 80:20 (the first figure indicates the percentage of crop area on which the "permanent facility" systems are to be preferred under extreme weather conditions, that is, when precipitation and evaporativity are deviating considerably from the average annual norms and grain losses can reach 20-30 per cent of the crop; the second figure is the percentage of crop area on which an improved combine harvesting method can be employed to good effect). These are the proportions which will insure minimum manpower inputs, timely harvesting operations and substantial reductions in the transport requirement. In the final analysis, they also point to the most advantageous metal and manpower utilization strategies. Based upon the results of bioenergy studies, it is proposed that we increase deliveries to agriculture of large-capacity transport (of greater than 45 m^3 capacity) and equipment for permanent facilities for system 2.

The bioenergy efficiency of mechanized grain harvesting operations reaches its maximum when the two systems are employed in the ratios indicated, regardless of the probability of fluctuations in precipitation and evaporativity. If these ratios are altered in either direction, the bioenergy efficiency indicators will decrease.

Let us point out in conclusion that at the present level of mechanization of grain harvesting operations, a system involving the removal of the entire biological crop for waste-free processing in permanent facilities is going to be a serious competitor with the traditional combine harvesting operations.

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TILLING AND CROPPING TECHNOLOGY

LIPETSK OBLAST AGRICULTURAL RESULTS REVIEWED

Moscow SEL'SKAYA ZHIZN' in Russian No 116, 22 May 85 p 2

/Article by O. Akulova, Lipetsk Oblast: "The Work Requires Initiative"/

/Text/ This is not the first year that the agricultural workers in Lipetsk Oblast have achieved such results: in 1984, they completed their plans for procurements of meat, milk, eggs, wool, honey, sugar beets, potatoes, fruits and vegetables and they fulfilled their task for selling grain to the state. All of the kolkhozes and sovkhozes have become profitable -- the overall amount of profit exceeded 179 million rubles. Based upon last year's results, the oblast was awarded the Challenge Red Banner of the RSFSR Council of Ministers and the AUCCTU. And a fine start has also been made this year -- over a period of 4 months, all of the rayons fulfilled their plans for selling farm products to the state and spring sowing work was carried out in a fine manner. And during the plenum of the oblast party committee, which was dedicated to the results of the April Plenum of the CPSU Central Committee, emphasis was placed upon the fact that the results achieved should not give rise to complacency.

During the preceding years of the five-year plan, the oblast fell behind in its obligations to the state by more than 1 million tons of grain, approximately 3 million tons of sugar beets, 41,000 tons of meat and 32,000 tons of milk. A radical improvement must be achieved in agriculture, all obligations must be met, increases must be achieved in the crop and milk yields and in the aminal weight increases and all organizational and educational work must be concentrated on these factors -- this then is the task that has been assigned today. And it must be carried out in a strict and exacting manner.

Shortly before the plenum, the bureau of the oblast party committee examined the course of the spring-field operations. It was during this important period that the attitude of the personnel towards their work became readily apparent. There were some who attempted to conceal their lack of activity behind loud promises and false window-dressing. But all of the farm and rayon leaders were confronted by the same requirement: to achieve unity in word and action. And experience has shown that not all of them were equal to the task. For shortcomings noted in their work, the chairman of the council for the Usmanskiy RAPO /rayon agroindustrial association/ A.M. Peshkov was relieved of his post, a strict party penalty was imposed upon the chairman of the rayon executive committee A.V. Timofeyev and a warning was issued to the 1st secretary of the Usmanskiy CPSU RK /rayon committee/ V.S. Roslyakov. Was this harsh treatment? Yes and it had to be this way.

"It must be remembered" stated the 1st secretary of the Lipetsk Oblast Committee Yu.A. Manayenkov during the plenum, "to work in the absence of initiative and only on the basis of prompting is no longer acceptable. We must eliminate decisively all attempts to blame operational shortcomings upon bad weather conditions."

The oblast's farms have at their disposal a rich economic potential and a strong logistical base. The key problem -- to achieve intensification for all branches, to mobilize the reserves more completely and to activate the human factor. In recent years, for example, the numbers of all types of livestock at the kolkhozes and sovkhozes have increased and feed production has also increased. However, the differences in the operational indicators for the livestock breeders tend to underscore a different attitude towards the work. During the 1st quarter, 21 farms did not fulfill their plans for the sale of meat to the state, 24 farms -- their milk plans. Just as in the past, the leaders of these farms are not averse to concealing themselves behind an overall favorable figure. But the demands being placed upon each one of them have increased. The sovkhozes Alekseyevskiy, Verkhnedonskoy and Ul'yanovskiy and the Zarya Kommunizma Kolkhoz have been criticized. A question was raised during the plenum: how do the party leaders of these farms prepare for the reports and election campaign and what will they say to the communists who elect them?

The keen and high principled criticism contained in the report served to attach a strict and yet sincere character to the discussion held during the plenum.

"When raising exactingness, the personnel must at the same time be granted greater independence in carrying out their work" stated the 1st secretary of the Stanovlyanskiy Rayon CPSU Committee V.P. Repkin, "but such independence is all too often restrained by numerous instructions, directives and orders. For example, up until now the structure of the areas under crops has been corrected by the oblast planning organizations acting upon their own discretion."

Judging from the reaction throughout the hall, the problem of planning is both acute and urgent. And it is being resolved throughout the oblast in a very slow manner. Although there is a fine example here. For several years now, the Petrovskiy Sovkhoz has managed only the wage fund and the product procurement volume -- and that is all! This presents the collective with a great amount of independence and it encourages initiative and creative work. At the Petrovskiy Sovkhoz, one finds the highest yields and farm productivity in the oblast and the strongest planning discipline.

In the speech delivered by the director of the oblast experimental station I.V. Artemov, the references by individual farm leaders to the caprices of weather were debunked. Methods for the cultivation of agricultural crops using intensive technologies, which ensure high yields, were tested successfully throughout the oblast.

A meeting which took place on the eve of the plenum at the Zavety Il'icha Kolkhoz in Lipetskiy Rayon was recalled. This farm was one of the first in the oblast to convert over to the cultivation of winter wheat using the intensive technology. The green tract of land extends to the horizon -- dense seedlings, uniform in size and with no weeds whatsoever. The specialists estimate that the yield will be not less than 60 quintals of grain per hectare.

"Three years ago" stated the chairman of the kolkhoz A.A. Vishnyakov, "Such wheat was found only on several hectares and this year the sowings being cultivated using the intensive technology occupy 1,000 hectares. Last year, a very dry one, 50 quintals of grain per hectare were obtained -- almost double the amount obtained from conventional tracts.

This year 130,000 hectares have been allocated throughout the oblast for cultivating winter wheat using the intensive technology. This constitutes a great step forward. The plenum has directed the attention of the party organizations towards the need for production intensification and for accelerating the rates of growth.

"A great deal depends upon the personnel" commented the head of the dairy farm at the Pamyat' Il'icha Kolkhoz in Dolgorukovskiy Rayon N.M. Volesteva in her speech, "In our collective, the conditions for the livestock breeders are identical and yet the results vary. Thus, discipline must be tightened up and more strict demands must be imposed upon the personnel.

A special discussion was held during the plenum on the subject of discipline and the campaign against drunkenness and alcoholism. On the previous evening, an article entitled "The Fall" was published in the oblast newspaper. It concerned the director of the Afanas'yevskiy Sovkhoz in Izbalkovskiy Rayon V.P. Khodykin, who with the connivance of the party organization spent an entire year in a drunken state and for weeks at a time did not appear for work. The director was removed from the ranks of the CPSU and dismissed from his post.

The work of the Izmalkovskiy Rayon party organization was seriously criticized during the plenum. The incident which occurred at the Afanas'yevskiy Sovkhoz was not singular in nature and it underscores the serious shortcomings which are taking place in personnel work and the failure to assign proper punishments. How else can one explain the fact that over the past 4 years 90 communists were declared to be inebriated throughout the rayon and only 11 of them were punished! The participants in the plenum unanimously approved the measures of the party and government for combating drunkenness and alcoholism. The decision was handed down calling for educational work in this regard to be intensified and also for greater demands to be placed upon the communists.

The speakers noted that the implementation of the decisions handed down during the April Plenum of the CPSU Central Committee requires that the level of party management for all spheres of production and social-political live in the cities and rural areas be raised still higher. The preparations for the 27th party congress must be based upon creative endeavors, unity of word and action, initiative and responsibility and exactingness both of oneself and of one's comrades.

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TILLING AND CROPPING TECHNOLOGY

VITEBSK FARM MACHINERY REPAIRS LAG

Minsk SELSKAYA GAZETA in Russian 10 Apr 85 p 1

[Interview with Vitebsk Oblast Selkhoztekhnika Chairman L. Bogdanov: "In the Quest for Lost Time"]

> [Text] Recently the Vitebsk Obkom Buro examined positive advances in sowing preparations but noted that the condition of sowing and cultivation equipment is not as yet up to required standards. Especially unsatisfactory is the condition of caterpillar-tread and other high-powered tractors.
>
> Getting them back in shape will largely depend on the farmers' main partners, the specialists of Goskomselkhoztekhnika. After the obkom buro meeting, our correspondent talked with oblast Selkhoztekhnika Chairman L. Bogdanov.

[Question] This year's sowing season demands skillful maneuvering and flexibility by the farmers. It is quite likely that drivers will have to shift from wheeled to caterpillar tractors and vice versa in the same field. How can the situation in the oblast be evaluated ir view of these circumstances?

[Answer] We must be ready for any surprises and unexpected developments. Clearly, the farmers are placing great hopes on Selkhoztekhnika, on our precise work in tractor repair. At present the oblast has 24,231 tractors of various types. Unfortunately, 1,691 are not yet ready to go out.

I will not deny the fault of myself or my services. The main thing now is not to make excuses but to correct the situation. Nevertheless, some explanation is needed with regard to the fair criticism directed at our services. The oblast has 6,034 caterpillar tractors. Of them, 483 are not in working order. Approximately the same ratio holds for T-150K units. The T-74 tractor was taken out of production last year. But this model accounts for most of the caterpillar tractors in the Vitebsk region, thus making it extra hard to get them back in shape. For example, we are presently in need of 300 tractor frame brackets. Stocks are allocated 199, but only 49 have been received.

Consider the situation with regard to units of the T-150K type. Their main weak point is the SMD-62 motor. It is not very reliable. Yet the Mogilev Repair Plant allocates only 646 repair slots yearly, which is clearly inadequate. They won't take more than the stipulated number. And the oblast has more than 3,000 T-150K units with those motors. So it is necessary to rebuild them under homemade conditions in our rayon Selkhoztekhnika units.

The main deficiency of the oblast Selkhoztekhnika is that we have not established the necessary liaison with industrial enterprises. There is an acute shortage of end-drive [konechnaya peredacha] pinion gears for T-74 tractors, horizontal pipes and rings for the T-150K gear box, and shoes for rock-proof [protivokamnevyy] plows. The specialized enterprises have not supplied them. We should have placed orders for manufacturing such parts in the oblast's plants. But we did not do so, and now a substantial portion of the cultivating machinery is out of commission.

We have some big complaints against Lioznenskiy Rayon Selkhoztekhnika, headed by P. Selitskiy. Out of 228 caterpillar tractors in the rayon, 38 are still not in working order. The explanation is simple: they started repairs late, and now the "crunch" is on in the repair enterprises and in their own shops.

Serious responsibility for 39 inoperative caterpillar tractors rests on Orshanskiy Rayon Selkhoztekhnika and manager F. Kovalenko personally. This individual needs to be reminded of the 15 January oblast Selkhoztekhnika order concerning unsatisfactory work on the organization and repair of farm equipment. More than 2 months have passed now, yet the Orshanskiy people have still not attained planned readiness.

[Question] How much time will it take to get all caterpillar and high-powered tractors in the oblast back into shape? What is being done about it?

[Answer] According to estimates, late in the first 10 days of April. Incidentally, until recently more than 1,400 tractors in the oblast were essentially "ownerless"--that is, no one specifically owned them. Experienced mechanics and repairmen have been sent out from the industrial enterprises to get them back in shape. A total of 2,097 men will be coming out. The oblast Selkhoztekhnika has set up a group, consisting of leading specialists, to take care of inoperative equipment. Their tasks include ferreting out and promptly resolving specific problems.

[Question] How are these specific factors of promptness manifested?

[Answer] Well, for example, Ushachskiy RAPO Chairman Ye. Slesarev submitted a requisition for 20 T-74 caterpillar tread sets. In just a few minutes, our specialists determined, using a computer program, that the Glubokskiy and Postavskiy rayon Selkhoztekhnika depots had a surplus of those items. An order to ship the necessary quantity of caterpillar tread sets to Ushachi was issued that same day.

[Question] What is stopping your service from working better, more efficiently?

[Answer] Mainly the lack of mutual understanding with our partners. Here is a characteristic example. Our specialists visited Kolkhoz imeni Chapayev in Verkhnedvinskiy Rayon in March. That farm has excellent standard shops. The machinery operators themselves do not perform repairs, relying instead on Selkhoztekhnika. And kolkhoz chairman V. Antonovich and chief engineer V. Filipenko were hoping that there was plenty of time and the repairs would get done. So they themselves have delayed getting the machinery in shape until the last minute. Our own workers, of course, were negligent in this situation. In short, again, we need liaison and mutual understanding and, mainly, a responsible attitude.

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TILLING AND CROPPING TECHNOLOGY

CONSOLIDATION OF CEREAL, LEGUME CROPS YIELDS BENEFITS

Minsk SELSKAYA GAZETA in Russian 10 Apr 85 p 2

[Article by Candidate of Agricultural Sciences L. Kukresh, head, Department of Technology of Legume Grain and Groat Crops, Belorussian Scientific-Research Institute of Land Cultivation: "Consolidation of Feed Grain Crops"]

[Text] The cereals grown in our republic are characterized by a low digestible protein content--each feed unit contains only 75 to 85 grams, yet the physiologically substantiated norm is at least 105 grams. Because of the protein deficiency, when livestock are fed these cereal grains without enriching them with high-protein additives, the cost of producing the planned volume of livestock output increases by about 1.5 times.

This is why it is vitally important for each kolkhoz and sovkhoz of the republic to utilize the method of consolidating plantings of oats and barley with legume grains, as worked out by the Belorussian Scientific-Research Institute of Land Cultivation and tested in many of the republic's kolkhozes and sovkhozes. Our main feed grain crops are barley and oats. Last year they took up 44 percent of all grain land and provided half of the gross grain crop. These are the cereals that will in the future constitute the main proportion in the structure of concentrated feeds produced for the farms' own use. To upgrade the protein content of feed grains, therefore, barley and oats will have to be consolidated with legume components.

Research has shown that when 15 to 20 percent peas or spring vetch is added to plantings of oat or barley that have been reduced by the same amount, the crop yield of the grain mix is not lower than that of a pure planting. Because the legume content in the sowing norm is small, consolidated oat and barley plantings, as a rule, are not subject to lodging, and the technology of harvesting is the same as for ordinary pure plantings.

The presence of the legume component in the grain mix structure increases the digestible protein content to the necessary level. It also improves the quality of the protein and increases the content of essential amino acids. Lysine, for example, is increased by 20 to 40 percent. The resulting grain, consequently, provides excellent nutrition for all kinds of livestock without additional enrichment. Consolidating oat and barley crops with peas and vetch

also increases the protein content in the straw, which in nutritional value approaches that of meadow hay.

A number of farms have produced excellent results with such consolidation. Last year, for example, Druzhba Kolkhoz (Kamenetskiy Rayon) produced an average of 53 quintals of barley-pea mix on each of 85 hectares.

The consolidation of feed grain plantings does not require extra labor or material costs. Spring vetch and peas are responsive to the crop's soil fertility. It is most effective, therefore, to consolidate oat and barley plantings on loamy and sandy loam soils underlain by cohesive soil. The optimal acidity of the topsoil is pH 5.8 to 6.5.

When consolidating oats and barley with legume grains, cultivation of the soil, preparation of the seed, and the timetables and techniques of sowing remain exactly the same as when cultivating a pure crop. Fertilizer dosages are calculated using the procedures of the Belorussian Scientific-Research Institute of Soil Science and Agrochemistry, taking account of the planned grain yield and soil characteristics. It is not advisable to apply nitrogen above optimal dosages. On low-fertility soils it is best to use organic fertilizers, preferably straw-mixed or liquid manure, avoiding the application of peat, which can introduce weed infestation.

For consolidating oat and barley plantings, use can be made of all zone-adapted varieties of peas, maple peas, and vetch, which differ very little in terms of early ripening in this republic. In planting, the optimal oat and barley sowing norm usually practiced on the farm is reduced and supplemented with peas at the rate of 0.2 million germinative grains per hectare or with spring vetch at the rate of 0.5 million on loamy soils. On sandy loams, the legume sowing norm is increased to 0.8 million per hectare for vetch and 0.3 to 0.4 million grains per hectare for peas. The seed grain mix must be thoroughly blended for uniform sowing of the components.

To combat weeds in consolidated oat and barley plantings, use is made of the herbicide prometrin at the rate of 0.5 to 0.7 kilograms per hectare. Where moisture is deficient during the sowing period, it is best to apply it prior to the planting, during pre-seeding cultivation. When moisture content is normal, the work can be done after the sowing and prior to pre-germination harrowing. Compounds of the 2.4D group must not be used. In crops consolidated with peas, during the phase of formation of three to five leaves use can be made of 2M-4KhM for chemical weed control, at the rate of 1.5 to 2 kilograms of active substance per hectare; when the crop is consolidated with vetch the compound is not used.

Excellent results in combatting weeds are provided by pre-germination harrowing of the crops, also after germination during the phase of formation of three to five leaves on the legume component of the mix. It must be kept in mind, however, that post-germination harrowing must be carried out in dry weather, in the daytime, and on soils with a level surface. In this case, medium harrows are used on loamy soils and light harrows on sandy loams.

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TILLING AND CROPPING TECHNOLOGY

BELORUSSIAN SPRING GRAIN CROPS, ROTATION DISCUSSED

Minsk SELSKAYA GAZETA in Russian 13 Apr 85 p 2

[Article by BelNIIPA deputy director N. Smeyan, BelNIIZ deputy director S. Grib, and BelNIIZ department manager N. Krivenya: "For Maximum Use of the Spring Grain Potential"]

[Text] In the structure of the republic's grain lands in 1985, spring grains and legume grains will take up 58.2 percent of the area, and in a number of rayons and farms of the northern and northeastern zones, where cohesive soils prevail, the figure will run 65 to 70 percent.

Proposals for optimalizing the structure of grain crops and their varietal composition in 24 soil-climatic zones of the republic are set forth in additional measures to intensify the republic's grain farming in 1985 and subsequent years, as worked out by the Ministry of Agriculture. This is to serve as the basis for testing the most acceptable structure of grain crops and varieties of them for each kolkhoz and sovkhoz.

Research has shown that wheat produces highest yields on soddy-calcareous soils having a neutral (or nearly neutral) reaction of the soil medium (pH 6.0-7.0) and a high content of humus (more than 3 percent) and nutrients. Wheat produces high, stable yields also on limed and well-fertilized soddy-podzolic loams and sandy loams underlain by morainic loam. Barley, peas, and vetch normally develop in the presence of the same soil reaction as wheat does. Among the soddy-podzolic soils, the most suitable for them are sandy loams, loams, and soils underlain by morain.

Oats are less demanding on soil conditions than are wheat and barley. Fairly good groups can be produced on both light and cohesive soils, although it also reacts well to improved soil conditions.

It is especially important to consider the properties of soils on farms which have introduced rotation crops concentrating on wheat, barley, peas, and vetch, which are highly demanding in terms of vegetation conditions.

On many kolkhozes and sovkhozes of the republic, the soils are extremely variable in mechanical composition, agrochemical properties, and watering. Under such conditions, it is permissible to deploy on a single rotation crop

field two grain crops differing in terms of their demands on soil fertility--spring wheat (barley) and oats (buckwheat), peas (vetch) and lupine.

Where soils are considerably variable in terms of genetic properties on one section (contour), preference must be given to less demanding crops and varieties such as oats, lupine, buckwheat, and Zhodinskiy-5 barley.

Recently, most of the republic's kolkhoz and state farm cropland has been sown, as a rule, to barley--the highest-yielding of the spring grain crops. Higher yields are obtained when deployed after row-crop predecessors; good yields are produced by barley grown after clover, perennial cereal-legume grasses, annual legumes such as lupine, peas, maple peas and vetch, and mixtures of them.

However, the above-listed predecessors on the farms may be insufficient for the planting of barley. In this case, it should be sown after oats and buckwheat. If these predecessors are sown after grains, the barley will have to be fertilized with manure or compost at the rate of 30 to 40 tons per hectare. Replanting of barley and deployment after winter grains, especially on sandy loams, lead to root rot and low yields.

The deployment of barley after winter grains such as rye and wheat is permissible only when these are followed by after-harvest cruciferae such as mustard, rape, cabbages, and radishes or, in the southern and western rayons of the republic, legumes--which, as experiments have shown, promote cleansing the soil of carriers of disease and boost barley yields by 2-3 quintals per hectare.

It is also inadvisable to sow barley after perennial cereal grasses, because it is then subject to root rot and yields are greatly reduced.

In some rayons and on some farms of the republic, especially in Vitebsk and Mogilev oblasts, substantial areas are planted to spring wheat. Like barley, it should be deployed in rotation after organically fertilized row crops. It can also be sown after 1-year clover and grain legumes. Spring wheat should not be sown after cereal grain predecessors.

Oats are not much subject to root rot and, consequently, yield relatively uniform harvests if adequately fertilized, both when deployed after row crops and legume grains and after grain predecessors. Oats serve as an excellent predecessor to barley and spring wheat. Yields of these crops following oats (in experiments) were almost the same as when sown after the best row-crop and legume predecessors. Buckwheat must be deployed in rotation after winter and legume grain crops.

Grain lupine should generally be sown after winter and spring grains. On farms where lupine is often returned to the previous field, there is the danger that the plants will be damaged by fusarium wilt and yields will decline sharply. Peas, maple peas, and grain vetch should be sown after fertilized winter crops.

It is unrealistic to set the task of boosting crop yields under a variety of conditions by concentrating on a single variety, even a very good one. The high density of modern varieties and the application of high dosages of nitrogen fertilizers create a favorable microclimate for diseases. What is needed is a strictly differentiated approach to the selection of varieties, scientific substantiation of their composition, and an integral system of mutually beneficial varieties (with regard to these matters, managers and specialists may refer to the article "System of Varieties--A Reserve of High Yields," which appeared in this newspaper on 14 March 1985).

Only a creative, differentiated approach in the deployment of grain and legume grain crops and varieties of them in crop rotation cycles, along with testing of the varietal structural most suitable for each farm (based on the specific soil and climatic as well as other conditions), can make it possible to make maximum use of the biological potential of each crop and variety and ensure a further increase in grain production.

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TILLING AND CROPPING TECHNOLOGY

INFLUENCE OF FERTILIZERS, 'TUR' COMPOUND ON SPRING WHEAT IN BSSR

Moscow KHIMIYA V SELSKOM KHOZYAYSTVE in Russian No 2, Feb 85 pp 29, 31

[Article by Candidate of Agricultural Sciences A. Ye. Osin and A. A. Duduk (Belorussian Scientific Research Institute of Land Cultivation)]

[Excerpts] In the past 7 years, land sown to spring wheat in Belorussia has increased more than 20-fold. This is due to the high productivity of this crop on well-fertilized soils, the improved quality of cultivation, and the adoption of new high-yield varieties. Many investigators believe [1...3] that the main reserve for boosting wheat yields and improving quality is to make full use of the potential capabilities of new varieties by providing the necessary nutrition level and improving the relevant agrotechnology. When the agrotechnology is inadequate, intensive varieties differ little from the extensive type, and in many cases are even inferior in terms of yield.

When spring wheat is grown on well-cultivated soddy-podzolic soils in Belorussia, the short-stemmed variety Belorusskaya produces its maximum grain yield on a normal mineral fertilizer background of $N_{120}P_{90}K_{140}$. The crops do not need to be treated with "tur." When the Leningradka variety is sprayed with "tur," the optimal mineral fertilizer norm is $N_{120}P_{90}K_{140}$; without spraying it is $N_{90}P_{70}K_{110}$. In both varieties, the best quality grain is obtained by applying ammonium nitrate in three applications: prior to sowing, at the onset of the stooling stage, and in the heading phase.

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FORESTRY AND TIMBER

TIMBER LOSSES, PROCUREMENT DEFICIENCIES EXAMINED

Moscow LESNAYA PROMYSHLENNOST' in Russian 28 May 85 p 1

[Article: "A Barrier to Losses"]

[Text] The fight against waste and losses was name among the most important problems at the April (1985) Plenum of the CPSU Central Committee. It was emphasized that there are still a great many derelictions in this matter. For example, the managements of many enterprises try to receive as much machinery, raw materials and fuel as possible from the state. But at times they take its rational utilization irresponsibly. Existing equipment often stands idle or is not used to full effect.

Unfortunately, this sort of shameful practice of the "extrication" of assets and equipment instead of putting one's own house in order occurs in the associations of the USSR Ministry of the Timber, Pulp and Paper, and Wood Processing Industry. Take, for instance, Permlesprom. As if to avoid disrupting the plan for road construction, last year the Perm workers requested dump trucks, bulldozers and graders from the ministry. But was this machinery so extremely necessary? Checks showed that it was not. You see, every unit in the machinery park in that period could have been used one-and-a-half times efficiently! Production commanders, instead of seeking reserves, calmly observed how single-shifting essentially became the norm in many road construction detachments.

A similar parasitic approach to affairs was manifested in Kirovlesprom as well, when they tried to obtain more cross-cutting units for themselves at any cost. But we'll pose the question: to whose advantage is this? In fact, behind the imagined cutting volume increase a real decrease in the level of equipment utilization is concealed in this manner. After all, the increased quantity of machinery cannot compensate for its poor utilization in inferior lumberyards.

It is no secret that the final result depends greatly upon the style of work. Where it is known how to effectively organize labor and direct the efforts of people toward the achievement of the main goal, there, as a rule, the return is high and "machinery in reserve," so to speak, is quite unnecessary. And in this regard, Hero of Socialist Labor P. V. Popov can serve as an example for many association chiefs and chief engineers; he demonstrated to management that his brigade could work entirely on two LP-19s, not on three, without a reserve.

"The main thing is not the quantity of machinery, but the attitude toward it" - it would be worthwhile for many in our industry to learn these words of the notable brigade leader by heart.

At the April Plenum of the CPSU Central Committee, the situation in capital construction was analyzed with concern in the plan of the struggle against losses. It was shown that many facilities are under construction an excessively long time. As a result, the buildup of capacity is restrained, physical assets are immobilized and the country does not receive necessary production in time.

All of this just criticism applies fully to the timber industry construction workers. Not long ago, summing up the results of the first quarter, our newspaper wrote that the timber industry construction workers failed at the three-month targets at industrial and non-production sites. Even in the building of housing, the allocated assets were not utilized. The failure permitted at 29 priority construction projects of the lumber industry is especially great: at only 14 of them were capital investments assimilated.

There were many construction projects where work is done without urgency and great amounts are postponed to a distant period - the final quarters and months of the year, dooming them to rushing and crash work. It is not necessary to go far for examples. The enterprises of the Komilesstroy must put into operation capacity for timber haulage in the Ust-Kulom and Pechora Timber Industry Establishments. They should hurry, but they dragged out the "smoke break": at these facilities, the plan is fulfilled by 39 and 59 percent respectively. The Arkhlesstroy in Ust-Poshenga was able to "ascend" to 60 percent, and at the facilities of the Lena Timber Industry Establishment they managed half the plan.

Even today, the situation changes for the better slowly. Such a state of affairs is quite intolerable. The workers responsible for the given section should be aware of this.

As noted at the plenum, considerable losses are associated with our inability to organize and lack of ability to economize and conserve gasoline, fuel, lubricating materials, etc. The reproach is just. After all, for instance, even in such a successful establishment as the Zhdanov Timber Industry Establishment, part of the Ust-Ilimsk Timber Industry Complex, the drivers of the logging trucks must expend fuel for nothing because the loaders are unprepared for work.

Can the losses be avoided? Certainly. The experience of the best workers and the best enterprises of the industry tells us this. A real campaign of conservation has been developed in the Ous Timber Industry Establishment of "Sverdlesprom." The loggers of V. Solonenko's brigade, the drivers of V. Meshcheryakov's brigade and other collectives do everything possible so that the timber industry establishment, over a year, can save material and fuel and power resources worth 36,000 rubles, and work two days on the economized assets.

At the Alapayevsk Railroad Center of this very association, an excellent knowledge of route relief, intelligent use of so-called dead floor, a mandatory monthly preventive inspection of equipment and the precise adjustment of fuel equipment made the locomotive brigade of A. Svezhanov one of the most zealous.

And we have hundreds and hundreds of such beacons. Their light should be seen by all.

The fact that the direct losses of physical assets due to carelessness in the transport, storage and consumption of coal, mineral fertilizers, timber and provisions are considerable was discussed at the plenum with particular concern.

That timber is not named by accident in this series was once again confirmed by the recent collegium of the USSR Ministry of the Timber, Pulp and Paper, and Wood Processing Industry. At it, the problem of the status and measures for improving the fire safety at ministry enterprises was reviewed, among other things. Scandalous instances of irresponsibility by responsible individuals were disclosed, due to which losses from fires last year increased from 1983 more than one-and-a-half times! The "red rooster" especially made merry at the enterprises of Glavzaplesprom and Glavvostlesprom and the Soyuzbumaga, Soyuzfanspichprom, Soyuzmebel' and Soyuzlesremmash associations. [All-Union Association of the Paper and Woodworking Industries; All-Union Association of the Plywood and Match Industries; All-Union Association of Furniture Industries; All-Union Association of Repair and Machine Engineering Facilities, Soviet Ministry of the Lumber and Woodworking Industry]

This year, the number of fires as a result of low labor and production discipline, and also by the fault of individuals in an intoxicated state, continues to grow.

The ministry collegium also reviewed the problem of the unsatisfactory work of the Soyuzlesur in strengthening the routine of economizing and decreasing losses in the area of maintenance (Obsluzhwaniye). As noted, checks by the USSR Committee of People's Control established instances of large-scale shortages and misappropriations, mismanagement and other negative phenomena.

It is necessary to fight mercilessly and decisively with them. "Such waste," it was noted at the plenum, "must be ended immediately. Appeals alone, apparently, will not suffice - there have been plenty of them. It is necessary to demand more, including legislatively, of specific individuals, for the safety and correct use of all physical assets."

The party has often noted that it will relentlessly pursue a policy of a general strengthening of discipline and order. Measures in this direction receive passionate approval and complete support among the people. The strengthening of the fight against laxity and waste, against all of that which hinders us from moving forward, is a matter for every party and trade-union organization and every labor collective.

A firm barrier must be set to losses on the timber conveyor!

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